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The Physiotherapy Review

Volume 15 Number 4

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The Importance of Trunk Muscles As Evidenced by Pool Work

C. L. Lowman, M.D., F.A.S.C.

The recognition of trunk muscle involvement in the early stages of poliomyelitis is not easy, due to the pain and spasm of the back muscles, and the difficulty of testing them to demonstrate their weakness or paralysis while the patient is in bed. And even when these muscles are known to be affected, they cannot be splinted readily or comfortably without special training and equipment.

In handling these cases most doctors unfortunately are so concerned with the perhaps seriously involved arms and legs that they overlook the trunk muscles, particularly those that are not obviously affected. The only matter of importance to them seems to be whether the child will walk again, or be able to use his arms.

In the treatment of trunk muscles, early use of pool therapy is of major import:

1. It promotes use of muscles even while they are in somewhat painful condition, thereby influencing the drainage of areas in the cord where edema may still exist.

2. It interrupts the continued development of disuse atrophy.

3. It permits tests and observations to be made, demonstrating conclusively the amount and character of a paretic or paralytic involvement of trunk groups which cannot be elicited in bed or on a table.

4. Since it is possible to begin early movement in the water without danger, the time saving factor is prominent.

5. By such early recognition of muscle weakness and the probability it offers of spinal deformity, preventive muscle training can be instituted at a time, and in a way, not otherwise possible.

It is difficult to say just which trunk muscles are of greatest importance, because paralysis of some of the smaller muscles in one segment, in combination with a slight involvement of some in another, may be enough to initiate a severe deformity.

To illustrate this point, I recall one patient—a strong country girl of eleven years, with the right rhomboids and the upper abdominals the only trunk muscles affected, yet in whom we predicted that a scoliosis would occur. And early and continuous treatment by all the means we could conceive—pool, traction, casts, etc., failed to halt its development. An abdominal transplant, followed by a spinal fusion of the dorsal curve was finally required before the deformity was controlled.

Each of the following segments should always be tested and watched carefully: Shoulder girdle and neck; upper back and chest; lower back; abdomen; and pelvis.

In the shoulder girdle, test rhomboids and trapezius, pectorals, latissimus dorsi, serratus magnus, upper erector spinae.

In the back area, test erector spinae, latissimus, exterior obliques, quadratus lumborum and psoas magnus.

In the abdomen, test the recti, obliques, transversali.

In the pelvis, test the glutei, erector spinae, quadrati, psoas, thigh abductors and adductors.

The combinations of imbalances in which any one, or several of these muscles may be involved is endless, both in kind and degree. The spotty type of weakness, in which some isolated muscles are very weak and their opponents strong, or in which those in one segment are strong, although their extrinsic fixators in another segment are weak, produces the greatest degrees of deformity.

We have a boy with sturdy legs and strong heavy shoulders and arms under treatment at present, who has developed a severe scoliosis because of paralytic involvement of the central trunk area (i. e. abdominal and low back groups). Each time he lifts his right leg to step, its weight is transmitted via the psoas to the deviated lumbar spine, pulling it still further to the right. The foundation is not steady, and will not remain as a fixed point from which the intrinsic leg muscles act normally. The result is tilted pelvis and scoliosis.

If such cases are tested very early in the water, these imbalances will soon show up with sufficient clarity to make it possible to predict exactly what will take place. When the patient is lying in bed or on the table, the body weight often gives a deceiving amount of fixation, and the pressure of arms at the side may (through the latissimus dorsi) steady the shoulders and spine so that a mild grade of abdominal or back weakness is covered up.

In the pool, the possibility exists of varying the degree and area of stabilization by changing the position on the submerged inclined plinth, or of eliminating all fixation by floating free. This, of course, cannot be done on a table or bed, since movement upward, away from the table, is all that can be done without the friction of

Chief of staff, Orthopedic Hospital, Los Angeles.

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contact; and when muscles are weakened, even this movement may require assistance from the technician.

In the water, with the plinth at the first inclination and the body weight fixing the trunk and pelvis, the legs may float free. Movements, which may be attempted in all planes, show more exactly what force the different muscles controlling the hip joint can exert, with definite localization to that segment.

If the plinth inclination is increased until the pelvis floats, efforts to make these same movements will not have the same results, especially if the abdominals are weakened. The absence, then, of gravity which assisted in stabilizing the pelvis by weight, shows up the fixator strength of the abdominals. When these are all, or in part paralyzed, the pelvis sags down antero-posteriorly, twists, or is tilted laterally when leg motions are attempted. When the involvement is localized to abdominals, and accompanied by the presence of good back muscles and strong or equal quadrati, the pelvis tips downward and forward only.

Also, if one quadratus lumborum is weak and the other strong, there will be a tilt forward with a lateral obliquity. In the same way, in the struggle to stabilize some base, the pull will be passed on up to the thorax, upper back, shoulders and arms—the force being exerted by way of any of these fixators. Consequently, when any of the opponent trunk muscles are out of balance, the segments will deviate toward the strong muscles which constantly shorten in their effort to take up the slack in the weakened antagonists, until something like a firm enough base is formed for action of the intrinsic muscles.

This situation exists in paralytic scoliosis, and shows up strikingly when the patient attempts to roll over on his side on the plinth. If in a roll to the right, with upper right, lower left oblique, either half, or all of the rectus abdominal is absent, the thorax will be twisted to the right, but the left pelvis cannot be lifted up and over the central axis, and the left leg lags back. This demonstrates the cylindrical or spiral adjustment of certain muscle groups that serve to rotate the upper trunk on the pelvis or vice versa.

Another interesting fixation effort is witnessed on the plinth when pectorals, intercostals and serrati raise the thorax forward and upward in front, while the erector groups arch the back behind, so that the weak abdominals become more and more stretched as the pelvis is rotated downward on its lateral axis.

We often fail to appreciate that this gap in the fixation chain becomes increasingly wider as the overacting muscles continue their efforts to stabilize, instituting more stretch palsy in the one and contracture of the others. It is not hard to see a contracture of the knee flexors or the gastrocnemius, and be on the watch to prevent deforming influences; but how often are we asleep when this same phenomenon is taking place in the trunk? After the spinal deformity and pelvic deviations have become fairly advanced it will be too late, and we may lock the empty stable after the horse has fled!

We have found that the following tests are of great value in elucidating the problem of these deeper muscle actions, first on the table, next in the pool—on the plinth and then floating free:

1. Head raising forward, with or without assistance, and against resistance of hand to forehead. Note the following: Does the navel raise or lower? Is it deviated down to right or left, up to right or left, or directly sidewards? Does the thorax raise straight up, or more on one side or the other?

2. Hold patient's arm at wrist; have elbow kept extended, and resist lightly his forward thrust. Then note the same points as above, particularly the shift of rib margins outward, and whether waist angle is shortened or lengthened. (For instance, a strong serratus on right, with good rhomboids to give it a base, with weak abdominal obliques and right quadratus, will allow the costal margin to shift outward to right, and lengthen the waist.) The more force applied, the more the fixation effort spreads; the good quadratus on the opposite side will pull up the left ilium and acutely increase the waist angle on that side.

The navel will remain quiescent if there is complete paralysis of all abdominals, if there is no paralysis, or if the paresis is about equal in all sections. The slightest inequality, however, will at once be evident, except perhaps in the very obese.

We must also not lose sight of the fact that in rather extensively involved cases this spreading of the fixation fan under severe effort is likely to extend even to the neck muscles. While we are laboring with trunk and legs, a head deviation gradually appears, due to some transmitted line of stress more on one side than the other through scaleni-trapezius or sternocleido. Very often the weakness is on one side in front, in the trunk and head twisting groups, and on the opposite side behind. And while we are working on apparently symmetrical intrinsic forward-and-back, or side-to-side movements, of arm or leg, the effort of extrinsic stabilizers is anything but symmetrical so that before we know it, trunk deformity impends.

Thus, we see that in the presence of a bad leg paralysis, remote slight paretic involvement of an occasional trunk muscle is easily overlooked. Technician, parent and patient often feel justifiable satisfaction over the returning function of the more obvious and seriously affected legs, but the insidious mischief higher up goes on until the day—often years later—when the paralytic scoliosis becomes apparent.

Now, the remedy for this is the early testing and recording of *all muscles*, trunk as well as arms or legs, in the gymnasium, and if possible also in the water. This should be repeated at intervals of six months for two or three years after the poliomyelitis attack, even when the doctor attending considers that everything is O. K. We may be sorry if we congratulate ourselves, or our patients, too early after a so-called light non-paralytic attack.

Remember that a five per cent trunk muscle weakness, in the presence of an already faulty posture and poor body mechanics, may ultimately cause as much trouble as a more serious involvement which is given greater care. Muscle testing in the pool requires a high degree of knowledge of kinesiology, and it should be noted that muscle training technique learned on the gymnasium tables, does not and cannot give the whole picture in the water. It is necessary to learn to know the differences inherent in this other medium, that is, how to take advantage of semi-fixed or free floating positions, and of sitting and walking at various depths.

Jack-knife, wig-wags and twists have different action and effect if the point of fixation is pelvic (as when feet are hooked under the rail—or shoulder girdle, when hands grasp rail.

It is this possibility in the water of moving in all planes with the bases of action arranged in several different ways, with the added advantage of the assistive action of buoyancy or the resistive action of submergence against it, that makes pool therapy able to ferret out trunk muscle imbalances in a way that cannot otherwise be accomplished.

The Prevention of Joint Deformities in the Treatment of Fractures

Walter G. Stuck, M.D.

Statistics reveal that there are increasing numbers of all types of fractures of bones from automobile and industrial accidents each successive year. With this increase in numbers there has developed concurrently an elevated standard of end-results of fracture treatment. Thus the physical therapists who assist in this work are more and more being faced with new problems in the care of the joints of the body after accidents. Although the surgeons who supervise these cases carry the greater part of the legal responsibility, the physical therapists may likewise be answerable for the perfection of the final results achieved. As Henderson has lately emphasized, the perfect treatment of fractures embodies these equally important R's: Reduction, Retention, and Restoration. Quite obviously the surgeons are directly responsible for the reduction and retention of fractures but to the physical therapists remains the supervision of the very vital restoration. Therefore it is well to emphasize the orthopedic details in the care of the various joints and to mention the preventable errors in treating fractures near them.

Heat, massage, exercise, etc., are most useful aids for improving the condition of the skin, the general circulation and for preventing adhesions in the soft tissues. But to avert deforming contractures of joints is a far more valuable function of the physical therapist than any of these others.

Apart from obvious errors of treatment, deformities after fractures are caused by several recognized factors. First, the usual disparity in the strength of muscle groups which flex the joints and those which extend them, may cause the stronger group of muscles to become contracted against the weaker and leave the joint in an abnormal position. Also at the time of accident certain muscles and nerves may be injured, so that the opposing muscles become contracted due to the absence of normal resistance. In addition, the force of gravity is a factor, since the weight of the limb will tend to pull against certain muscle groups while helping others to contract. Furthermore, in fractures in the joints there is often such an accumulation of fluid that the joint may be held in a disadvantageous position in order to relieve the capsular tension and accompanying pain. And finally, purely as a matter of convenience, neglect, or lack of skill, the extremity may be allowed to rest in a splint in such a way that it encourages deformity. We will point out, while considering the individual joints, how these various factors come into play and the rules of treatment in each case for avoiding error.

Shoulder Joint

Adduction of the arm is effected by the pull of the strong pectoralis major muscle and by the equally potent force of gravity, while it is abducted by the relatively weak deltoid and supraspinatus muscles. Also after any injury involving the shoulder, it is a natural tendency for the arm to be held at the side of the body in a position where most of its usefulness is lost. In addition, internal rotation of the joint depends upon the strong latissmus dorsi and subscapularis muscles, whereas external rotation is accomplished by the weak infraspinatus and teres minor muscles. Consequently, after injury it is necessary to support the shoulder in moderate abduction and slight external rotation in order to protect the weaker groups of muscles and to prevent deforming contractures. Despite these generalizations, however, the surgeons who treat these cases are compelled at the outset to consider the bony approximation of the fragments (Fig. 1) before undertaking to support the muscles in the optimum position.

In the early stages of mobilization of the shoulder joint after fracture, it should be borne in mind that much of the apparent motion of the joint may all be scapular rather than in the glenoid cavity proper. This deception often encourages the patients by mistake and leads

Fig. 1. H. L. S., age 43, fracture of both shoulders December 23, 1934. Photograph of patient with bilateral shoulder spica cast, demonstrating how the angle of fixation of shoulders may vary, even in the same patient, according to the position of the bony fragments.

to a false security in treatment. Another caution, is to avoid rotation movements of the arm until the union of the fracture is clinically solid. Mr. Watson Jones, of Liverpool, has quite recently pointed out that much of the interference and delay in healing of fractures of the arm results from rotation strains which damage the weak immature callus at the fracture site. Therefore, when the shoulder is to be exercised, the entire arm and forearm should be supported by the operator so that twisting strains are not possible. Also to secure motion in the shoulder joint itself, an attempt should be made to prevent scapular motion.

A common mistake made by physical therapists is to force all shoulder motions by pulling on the elbow with no support under the arm itself. Such technique permits a very strong leverage to be thrown on a fracture near the shoulder joint and may produce needless pain or undue strain at the fracture-line. I believe it is much wiser and safer, in abduction exercises, to lift the arm

San Antonio, Texas.

in entirety rather than to lift from the elbow alone. Certainly this will prevent much pain, and will forestall the use of too much force at the fracture.

In cases where normal shoulder motion does not return promptly, some surgeons prefer to manipulate the joint while the patient is under an anesthetic. This is perfectly legitimate and an accepted procedure in an extremely small group of cases, but as a general therapeutic measure it is fraught with much danger. In the first place, unless the manipulation is intelligently carried out in the hands of an experienced operator, the articular surfaces of the joint may be seriously damaged or the bone crushed. Moreover, forceful manipulation frequently arouses hemorrhage, which in turn produces adhesions that delay rather than hasten the recovery of joint motion. Another common mistake made by surgeons in treating fractures of the shoulder is to immobilize the joint too long. In such cases the muscles may become atrophied and adherent or the articular surfaces ankylosed so that the restoration of motion is markedly prolonged or even impossible.

In general then, we can conclude that many of the deformities of the shoulder following fractures can be prevented if these simple rules are followed:

1. Immobilize the shoulder in a position of moderate abduction and external rotation.
2. Begin gentle passive exercises of the shoulder and elbow as soon as the fracture is solid.
3. Do not use undue force in attempting to restore motion to the shoulder. Lift the entire arm rather than pull solely from the elbow.
4. Do not rotate the arm in the early stages of mobilization of the shoulder.

ELBOW JOINT

As far as the purposes of this paper are concerned, the elbow joint is simply a plain hinge which permits motion in but one plane. The flexors of the joint are the strong biceps and brachialis muscles, whereas the extensors are the relatively weak triceps and anconeus. However, in this case, despite the weakness of the extensor muscles, the defect is made up by the action of the force of gravity. In effect, the weight of the forearm and hand aid and abet the weaker muscles so that there is no characteristic joint deformity as a sequel to fractures about the elbow. Moreover, in treating fractures of the elbow there is no standard accepted position for fixation as in some other joints, and the extremity is supported in varying positions, depending upon the type of the fracture. Thus in supracondylar fractures the elbow is immobilized in very acute flexion; in fractures of the olecranon with separation, the elbow is splinted in the extended position, and so on.

The most common deformity or disability following fractures near the elbow is stiffness of the joint, or a limitation of the extreme degrees of motion. Much of this is preventable, for, in most cases, the elbow does not require immobilization for more than a few weeks. If by mistake the joint is kept at rest too long, adhesions quickly form, the articular surfaces become ankylosed, and it is almost impossible to restore it to full function. Of course, while the decision to begin exercises of the elbow rests with the surgeon treating the case, nevertheless, much of the effectiveness of early passive exercise is dependent upon the skill of the physical therapist.

When exercises and motion are begun in the elbow, it must be remembered that there are two distinct functions of the joint—one flexion and extension, the other pronation and supination. Both must be recovered and preserved if at all possible. However, if there has been sufficient injury so that all joint motion is lost, the member will be most useful if the elbow is ankylosed in ninety degrees flexion and with the forearm in slight supination.

In summary then, the general rules for avoiding deformity after elbow injuries are:

1. Immobilize the joint in a position to protect the fracture, because muscle imbalance is not such a potent factor in this joint.
2. Early motion is essential after elbow injuries, since stiffness develops readily in this snugly-mortised joint.
3. Exercises of the elbow must include pronation and supination in addition to flexion and extension, for both these motions are vital to normal function of the joint.

WRIST JOINT AND HAND

Fractures about the wrist are extremely common because the hand is such a useful member, and disability from improper treatment of it is likewise common. The reason for this is the failure to recognize certain basic physiological and mechanical principles when these cases are treated. In the first place, to reduce most fractures of the wrist, it is necessary to splint the hand for a while in a position of marked palmar flexion, which position, nevertheless, is most unfavorable for subsequent good function. To prevent serious disability, the wrist must be dorsiflexed as soon as early union has taken place or the danger of re-fracture is gone. Furthermore, in treating fractures of the wrist it is most essential that the fingers should be left free and movable in the cast or splint which is used. If not, tenosynovitis usually develops in the tendons that cross the wrist, the joints of the fingers become stiff, there is marked bone atrophy and serious disability results.

Since the flexors of the wrist and fingers are so much stronger than the extensors, the commonest deformity which the wrist assumes is a position of palmar flexion at the radio-carpal joint with varying amounts of flexion in the fingers. In such a position the hand is useless and the disability is extreme. Furthermore, the force of gravity may play an accessory part in the production of this deformity, because some splints and slings permit the hand to hang freely from the wrist. Even in relatively minor accidents this is bad practice, and it is well to lay down the general rule that at all times the hand should be so supported that no deformity can develop or be aggravated by the action of gravity.

In treating injuries involving the hand it is likewise noteworthy to remember that the thumb is entirely useless if it is fixed in the same plane as the fingers. The normal functions of the thumb require that it be internally rotated, adducted, and held with its palmar surface opposite the palmar surfaces of the fingers. In any other position most of its usefulness is lost. Fractures which involve the individual bones of the fingers require brief immobilization in a position of moderate flexion, although this, of course, is dependent upon the type of the fracture, the degree of displacement, etc.

In brief, the general safeguards to observe in treating fractures of the wrist are:

1. The wrist is most useful in a position of dorsiflexion with the fingers in moderate flexion. This should be assumed and maintained as soon as possible after the accident.
2. Do not immobilize the fingers unless they are

fractured or unless it is necessary to support a bony fragment at the wrist.

3. Do not permit the hand to hang unsupported from a sling.

4. Splint the thumb in an adducted position opposite the fingers with the palmar surface of the thumb opposed to the palmar surfaces of the finger.

HIP JOINT

The hip joint is especially susceptible to deformities caused by muscle contractures and since, because of the strength of the muscles, their correction is very difficult, their prevention is doubly important. As prehistoric man assumed the erect positon from the quadrupedal, the comparative leverage of the muscle groups about his hip joint was profoundly altered so that, instead of a fairly equal balance of muscle power in the thigh, we now find strong flexor muscles opposed by weak extensors and strong adductors matched against weak abductors. Therefore, in treating fractures involving the hip, these factors must be carefully considered and combatted as potential sources of deformities.

Unless the hip is immobilized in the proper position there will develop contractures of the stronger groups of muscles with resulting deformities which are very troublesome to treat. The importance of overcoming all these potential derangements and the manner of doing so is very graphically demonstrated by the so-called "Whitman Position," the recognized method of splinting fractures of the hip during healing. In following this treatment, the leg on the affected side is widely abducted (thus helping the weak abductors), is hyper-extended (in aid of the relatively weak extensors), and the foot is turned slightly inward (partially to combat the external rotators of the thigh).

Another factor that must be recognized and prevented is the usual flexion of the hip which is assumed when a patient is resting on a soft bed. The sagging of the body which takes place on the ordinary mattress permits fifteen to twenty degrees of flexion in the hips and most of it is overlooked except by careful observers. Moreover, when the patient begins to sit up during the day, the hips will be held for long periods of time in varying degrees of flexion, thus encouraging deformity.

Even when the fracture is healed and the patient begins to walk again, there is an ever-present tendency to develop a typical flexion-adduction contracture at the hip. The physical therapists must be on constant guard to detect early evidence of this and to be prepared to institute corrective exercises in time to prevent it. Here, as in many conditions, prevention is by far the most valuable and most effective method of treatment. Of course, if for some reason the patient should lose all motion at the hip and if the joint should become permanently ankylosed, a few degrees of flexion would be desirable so that he could sit down comfortably. But adduction of the hip is never sought after; for, if anything, the hip is more serviceable if it is held in a position of moderate abduction.

KNEE JOINT

At the knee, the flexor and extensor muscle groups are of about equal strength; but, since the knee cannot be extended beyond one hundred and eighty degrees, the extensor muscles seldom have as strong leverage as do the opposing flexor muscle. Therefore, in deformities which involve the knee, the mechanical advantage of the flexor muscles may produce posterior subluxation of the tibia (from the strong direct pull backward) as well as simple flexion contractures. Also, when the knee is flexed to a right angle position there is normally some slight rotatory motion possible in which the external rotators are much stronger than the muscles which rotate the knee inward. Consequently, when the knee is being treated after an injury, three serious deformities liable to develop and which must be prevented are: (1) various degrees of flexion contracture, (2) posterior subluxation of the tibia on the femur, and (3) external rotation of the leg on the thigh. In general, all three of these deformities are preventable and there is seldom any excuse for permitting them to develop.

Very often at the time of accident the surgeon may need to immobilize the knee in a slightly flexed position in order to hold the bone fragments together. But it is after the fracture has healed and during the early exercises that the aforementioned deformities become apparent. Unintelligent forced straightening of the knee is a most potent source of subluxation and rotation deformities because too frequently the force is applied entirely at the heel. This throws powerful leverage upon the upper end of the tibia and tends to displace it backward. The correct technique is to support the foot and calf equally during knee exercises and to apply any necessary force at both points rather than at the heel alone. And lastly, the quadriceps extensor muscles should be developed so that they can function as early as possible against any potential contractures.

ANKLE JOINT

After fractures in or about the ankle joints there are for the most part only two characteristic deformities (plantar flexion and eversion) which may develop. The reasons for this are rather obvious. First, the ankle is plantar flexed by the strong gastrocnemius and soleus muscles, whereas the dorsiflexors are relatively weak. Second, since the forefoot is much longer and heavier than the heel, the force of gravity tends to pull the foot down into an equinus position. And lastly, when a patient is lying in bed, the weight of the bedclothes tends to aggravate the deformity of the foot.

In most fractures involving the ankle joint itself, the foot is displaced outward. This displacement, unless corrected at the time of reduction of the fracture, will result in an eversion deformity and a persistently disabling flat foot. When the injuries to the lower leg do not directly involve the ankle joint, sometimes inversion deformities result. This is due entirely to the relatively superior strength of the invertor muscles as compared with the weak evertors. It is the physical therapist's responsibility when exercising the ankle to prevent or at least correct all these deformities. Exercises should be aimed at the stretching of the contracted muscles which cause the deformity and, after treatments, the foot must be replaced in the cast or brace in a position at right angles to the leg. However, it is most important to make sure that the foot is not overcorrected, for if this is done by mistake, the patient will walk on his heel, an extremely awkward position.

SUMMARY

It has been pointed out that the physical therapist is a very responsible agent in restoring injured joints to their normal position. Her work is definitely supplementary to that of the surgeon. Muscle imbalance, nerve and muscle injuries, the force of gravity, or neglect may cause characteristic deformities to develop after injuries to the various joints of the body. The most likely accidents have been described in detail so that the precautions necessary to forestall them can be taken soon enough. Such intelligent preventive measures will avert most deformities after accidents and, in fracture cases, prevention is the greater goal.

The Functional Treatment of Fractures

Rettig Arnold Griswold, A.B., M.D., F.A.C.S.

Next to the preservation of life and limb, the most important goal in the treatment of fractures is the restoration of the patient and the injured extremity to normal function. Function depends first upon structural continuity of the bony framework and, second, upon power and freedom of motion in the soft tissues of the locomotor apparatus. Boehler says, "Every fracture implies a severe injury of the whole locomotor apparatus, and the treatment requires that this should be restored to normal as quickly and completely as possible. Bones, muscles, joints, vessels, nerves and the covering tissue, the skin, must all be equally looked after; no one tissue must suffer at the expense of others." Hippocrates said, "All the bones get consolidated more slowly if not laid properly and if not kept steady in the same position" and "it should be kept in mind that exercise strengthens and activity wastes." Restoration of structural continuity of bone demands firm contact and uninterrupted fixation of the fragments until healing occurs. This usually requires fixation of the joints proximal and distal to the fracture. On the other hand, maintenance of power and freedom of motion in the soft tissues demands active exercise and functional use of these tissues. Superficially considered, these requirements are antagonistic. Fixation of bone would appear to require immobilization of the soft parts. Exercise of the soft parts would seem to imply motion of the skeleton. Attempts to compromise these apparently antagonistic factors may lead to disaster. Early removal of fixation apparatus for exercise often causes displacement of fragments, pain, deformity and non-union. The pain caused by motion of the bony fragments may defeat the purpose of physical therapy, since muscle spasm and fear of pain on motion prohibit free exercise of the musculo-tendinous apparatus. Long fixation of the limb by conventional methods will produce on the other hand disabling atrophy, stiffness and pain on motion which may be permanent.

It remained for Boehler to demonstrate that uninterrupted fixation of the skeleton was not necessarily antagonistic to active function of the soft parts. The principles of the method which we are using are modified from his work. The first principle is accurate reduction of fragments by mechanical methods which may be compared in precision to other mechanical arts. The second is firm, uninterrupted fixation of bony fragments by accurately applied non-padded plaster casts supplemented, when necessary, by steel pins which transfix both fragments and are firmly imbedded in the plaster. The use of transfixing pins imbedded in plaster has been worked out by Boehler and others for the forearm, the carpus, the leg, the os calcis and the tarsus. More recently it has been applied by Anderson and the writer to the femur, patella and the olecranon. It is probably unnecessary for fractures of the humerus. The non-padded cast with transfixing pins constitutes an adequate external scaffold to replace the broken internal framework while repair is taking place. For fractures of the lower extremity a walking-iron heel is applied to the cast. The third principle, made possible by the first two, is full, active use of the extremity from the start, including weight-bearing. The non-padded cast immediately prevents pain on motion by fixing the fragments so firmly that they cannot rub against each other. Absence of pain permits full, active use of the part immediately after fixation without muscle spasm. Patients with fractures of the forearm may light cigarettes, button their clothing and drive cars on the day of fracture. Patients with fractures of the lower extremity may painlessly bear weight on the injured limb within forty-eight hours.

The mechanical anatomical replacement of fragments is carried out under anesthesia, preferably local. The apparatus and means by which this is done will not be discussed in this paper. Careful application of the cast is most important and should not be delegated to a poorly trained assistant. It must be molded accurately to the surface of the limb, especially over the bony prominences, so that pressure is evenly distributed and no motion is possible between skin and plaster. If motion is allowed, pressure and friction sores will develop. Each cast must be properly trimmed to allow the greatest possible function consistent with fixation. Forearm casts should extend to the knuckles on the dorsum of the hand to prevent edema but must be cut out on the palmar surface to allow full ninety degree flexion of the proximal phalanges and complete function of the thumb. The elbow must be completely free unless the location of the fracture makes fixation of the elbow imperative. In a Colle's fracture, immobilized in this way, all forty muscles of the hand and forearm can actively move throughout a large part of their normal range. For injuries about the ankle, the dorsum of the foot must be covered but the toes left free to move. The cast must closely grip the malleoli and the heads of the tibia and fibula, but be trimmed to allow ninety degrees flexion at the knee. As a general thing, the common rule of fracture treatment, immobilization of the joint proximal and distal to the point of fracture, is observed. One exception is fractures of the humerus, in none of which is the shoulder immobilized.

As soon as the plaster has set sufficiently to prevent cracking or distortion of the cast, the patient is instructed in active functional exercise of the part. In injuries of the upper extremity this may be done advantageously before the local anesthetic has worn off. The patient should be taught to completely open and close the fist, button his clothing, write, light cigarettes, sweep or do other exercise appropriate to his habits or occupation. The active exercise aids considerably in preventing and reducing swelling at the fracture site. No sling is used for fractures of the forearm, as this limits motion. In some severe fractures elevation above the body level may be necessary for twenty-four to seventy-two hours to diminish swelling. Patients with fractures of the lower extremity are taught and encouraged to bear weight as soon as the cast is hard enough, usually

From the Fracture Service, Department of Surgery of the Louisville City Hospital and the University of Louisville School of Medicine.

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forty-eight to seventy-two hours in simple fractures. Here again, active use diminishes swelling, but frequently elevation is essential for the first week when the extremity is at rest. Adults may start with cane or crutches, according to the magnitude of the cast and their self-confidence in balancing. Many children, being more fearless, may need no extra support from the start. Proper instruction and encouragement are important, since many patients with hearsay knowledge of orthodox methods are fearful that use or weight-bearing may cause displacement. This fear may be easily overcome by proper instruction and encouragement. The psychic effect of transforming an incapacitated, injured patient at once into a healthy person with a bandage on his limb has a favorable influence in preventing the compensation neuroses. We have had one patient riding a motorcycle as a delivery boy ten days after a badly displaced fracture of the ankle. Another with a fracture of the os calcis in plaster cast with transfixing pins returned to his occupation as a painter, working on top a ladder, three weeks after injury. Fractures of both bones of the leg or of the shaft of the femur may bear weight as early as the third day.

These casts remain in place longer than the conventional fixation apparatus, usually until complete unaided weight-bearing is safe and painless. The cast thus takes the place of the usual convalescent splint or brace. Some support, such as cane or crutches, may be used for a few days until the sense of insecurity caused by removal of the cast disappears.

The continuous active motion of normal use is natural physical therapy and, being continuous, is superior to any artificial and intermittent type, whether active or passive. During exercise and walking, the muscles and tendons move easily in their sheaths without pain from the firmly fixed bones. Fascial planes slide over one another in the natural manner. Even those muscles whose origins and insertions are so fixed in the cast that they cannot approach each other, undergo contraction and relaxation with each step or each active motion of the extremity. In a case of Pott's fracture, for example, only the anterior and posterior tibial and the long and short peroneal muscles have their origins and insertions fixed, but even these contract and relax with their neighbors when the limb is actively used. The fact that a muscle may be exercised by active contraction without actual shortening of the muscle or motion of the joint has been recognized for a long time and is taken advantage of in "muscle-setting" exercises. The continuous exercise obtained by active functional use is obviously more natural and effective than the intermittent artificial type. The pumping action of contracting and relaxing muscles maintains normal flow of blood. This, to a large degree, prevents atrophy and subsequent edema. Normal nutrition and the absence of stasis hasten healing of the fracture, as does the mild intermittent pressure on the fracture surfaces. The ability to use the extremity without pain tends to prevent the disabling joint stiffness so common after immobilization in casts or splints which do not permit active function. This limitation of motion is caused, not so much by lesions within the joint, as by gluing together of the muscles, tendons and capsular fasciae surrounding the joint. When the extremity enjoys full functional use during the period of immobilization, these tissues are well-nourished and free and supple when the fracture has healed.

Even the joint capsule and synovia enjoy painless motion with each step, notwithstanding the fact that the bones making up the joint do not move to any perceptible degree. This is clearly evident from an analysis of the muscular attachments to the capsule of the knee, which, except for the shoulder, is most often the site of disabling stiffness as the result of conventional forms of immobilization. The quadriceps tendon, which is inserted into the patella and through it to the patellar tendon, forms the anterior ligament of the joint capsule. Tendonous expansion from the vasti and the ileotibial band form the medial and lateral retinacula which fill in the intervals between the anterior and collateral ligaments of the capsule. Posterior to the collateral ligaments are expansions from the sartorius and semimembranosis to the capsule on the tibial side. A few fibres from the latter muscle join with the tibial collateral ligament. Posteriorly and laterally the gastrocnemius and popliteus arise in part from the capsule and its oblique popliteal ligament. The tendon of the biceps femoris divides to embrace the fibular collateral ligament. The capsule of the knee is thus made up or acted upon in its entirety by muscle origins or insertions. With each step, contraction of the quadriceps causes slight sliding of the patella and motion of the entire anterior synovia by means of the retinacula. Posteriorly and on the sides, the other muscles noted above repeatedly tense and relax the capsule thus preventing gluing together of the synovia and the capsular fasciae. An analysis of other joints of the extremities shows that similar muscular relations exist. These muscle connections continuously and actively exercise the joint capsules even though motion of the articular surfaces does not occur.

Treated in the manner outlined above we often find complete active function of the ankle and fifty per cent function of the knee and hip on the first attempt at motion after removal of the cast. In the upper extremity there is often one hundred per cent function of the wrist and fifty per cent of the elbow at once. The shoulder is never immobilized in our method of treating fractures of the humerus but it usually is able to actively move thirty to fifty per cent of its complete range after removal of the cast from the arm and forearm. The usual degrees of function noted above on first removing the cast improve rapidly to complete normal function within a few weeks. The only exceptions are those patients who have not been able to use the limbs while immobilized (usually because of other injuries or poor instruction), those with irreparable fractures into joints and those having compound injuries with extensive scar binding muscles or tendons to bone.

Conclusions

1. Absolute uninterrupted fixation of bony fragments is not incompatible with active exercise of the soft parts.

2. Functional use is natural physical therapy and is continuous rather than occasional or intermittent.

3. Active use of the extremity fixed in non-padded plaster supplemented when necessary by transfixing pins maintains muscle tone and strength and prevents atrophy and stiffness.

4. The ultimate function of the extremity compares favorably with other methods.

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Suggestions for Muscle Re-Education of the Legs of the Spastic Pre-School Child

May Watrous

"If I could only get him to use his feet as easily as he does his hands!" How many times we have heard that—those of us who are workinng with hemiplegic and diplegic spastic children. To many toddlers or babies, rhythms or music have not the slightest appeal and until these kiddies learn to enjoy moving to song or rhyme, what can we do with the feet? This question has started me on a quest for stunts or games that children enjoy doing with their feet—a search which I have only begun.

There are certain procedures we learn from our older cases that we can pass on to these little people. First of all are methods that help to produce relaxation. Since Jacobson published his book on "Progressive Relaxation," the whole profession has become aware of the importance of re-educating the inhibition mechanism exactly as much as the contraction mechanism in regaining coordination. You will remember from your physiology that contraction is a compromise between two opposed forces and never purely excitation of inhibition. With my older cases I have found it possible to teach inhibition through relaxation, even to spinal cases with reflexes so hyperactive that a mere touch upon a tendon would cause a violent contracture.

In small children we must rely upon quiet talking or the making of a succession of gentle word pictures to start relaxation while we slowly move the joint through the range of relaxation secured. Slow deep pressure on the spastic muscle, or kneading of the antagonist, or shaking a whole extremity are, in my experience, the best methods of those I have used to produce artificial relaxation. These succeed well with children. In a very short time the three-year-old child will give voluntary cooperation as well, and all by himself the little toddler will pat the spastic arm and tell it to "go to sleep." Another way to secure training in inhibition is to control carefully the speed of the movement. The leg must not be dropped from a height but brought down with control.

Offering resistance is the greatest help in gaining control of a movement. Sherrington[1] says a strong stimulus will inhibit a reflex in progress although a weak one will fail. Certain it is, that adduction will often be inhibited when the patient abducts against resistance. This is important with small children too young to use voluntary inhibition.

Dr. Severence stresses the point that variation in the speed of an exercise is important. Some children relax much better with a fairly fast rhythm, and by using his suggestion it is possible to help the child to establish coordination at the optimum tempo. I have found this very helpful. Bearing on this is the interesting observation of reflex activity made by physiologists.[2] As a general rule the chief extensor muscles of all mammals possess a deep, slowly contracting component. Each slow muscle has attached to its tendon a quick muscle often of double joint disposition, that is, soleus slow, gastrocnemius rapid. Flexor muscles, as a rule, are of the rapidly contracting variety, whereas those in which the stretch reflex is most easily provoked (posture muscles), are the slow contracting muscles.

Miss Kawn in her interesting book, "The Wise Choice of Toys"[3] says, "The Cardinal principle in choosing play material for children is to choose material from which the child can gain satisfaction by himself independent of adult initiative". A part of each exercise period and each day's plan can allow for this almost from the first.

The pre-school child's attention span is very short—a normal child spends only from five to eight minutes with a toy. Variety during the course of a treatment is therefore absolutely essential. The attention span of a four or five year old child is about double that of a two year old, but this depends a great deal upon the individual child. While normally a child first learns gross manipulation—to grasp blocks, throw them, knock them down—a spastic child much older in years gains satisfaction in these same motor skills. It has often been said by the child psychologist and educator that an atmosphere of encouragement and praise is the most favorable one for acquisition of skill. It is helpful to bear this in mind for it is so easy to make deficiencies the subject of constant comment when treating these cases.

Starting with the hips, which is the first problem to master, I have found the following games and stunts useful.

Abduction and Adduction

Back lying:

1. Knock down a toy, or use a soft pillow with a toy on top and push it out to the side. (One leg at a time, at first).
2. Roll a ball, try to hit an object.
3. Use a balloon tied to the ankle with a string.
4. Push an object out to strike a tin pan or gong. (This makes resistance possible).
5. Tie bells to the ankles.

Hip Flexion and Extension

Back lying:

1. Hip flexion and extension usually offer less of a problem, as far as interest is concerned. Children like to bend the hip, sliding the foot up and down along the table. They like it even better when there is something they can push off the table, and this device is useful to gain increased knee extension. Later I also use single, double and alternate flexion and extension of the hips.
2. A tricycle to ride.
3. Most children like to kick. I use a rustly news-

Department of Health, Syracuse, N. Y.

I am very deeply indebted to Dr. Roscoe Severance of Syracuse, New York, for helpful criticism of this paper. I owe directly to him much of the method I am now using in the treatment of spastic cases.

[1]The Integrative Action of the Nervous System—Sherrington, Yale University Press, 1906.

[2]Reflex Activity of the Spinal Cord—Creed, Deny, Brown, J. C. Eccles, E. G. Liddell and C. S. Sherrington. Oxford at the Clarendon Press, 1932.

[3]The Wise Choice of Toys—Ethel Kawn, University of Chicago Press, 1934.

paper held up above the feet for the child to kick as he lies on his back. A child also likes to hear a newspaper rattle when he lies on his face, with legs over the edge of the table, and kicks up against the paper. Children enjoy the feeling of a soft pillow to kick, or to watch the movement of a bright colored cloth as they kick against it.

Straight Leg Raising

Back lying:

1. Raise the leg up to hit a balloon.
2. Raise the leg up and bring it down on a tin pan or drum. Sing a march and let the child beat time.
3. Tie a toy to the ankle and have the child give the toy a ride up and down.
4. Tie long colored streamers to the ankle and have the child raise them to see the pretty colors.

Knee Flexion and Extension

Back lying:

1. Use flexion and extension of the knee combined with hip flexion and extension as previously described.

Sitting position:

2. Kick up and strike on a drum or a tin pan. (Do the same lying on the face).
3. Tie bells to the ankle and have the child kick up.
4. Put the feet in a sand box and play in the sand with the feet.
5. Give toys a ride—use streamers, etc.
6. Use objects stuck between the toes and get ankle flexion along with knee flexion. Have the child reach for objects.
7. Have the child kick a ball or other object—bean bag or toys.
8. Have a child kick off a loose shoe.
9. Use a tricycle with pedals adjusted to the right length.
10. Hide the leg under a blanket and have the child kick up and move the blanket to surprise you.

Ankle Flexion

Sitting position:

1. Use a toy harp—stroking it back and forth with the foot.
2. Have the child play a piano with his feet.
3. Bury the foot in sand—have the child lift the toes out—playing peek-a-boo.
4. Do the same in soapy water—lift the toes up and raise some floating toy, or play peek-a-boo.
5. Finger painting. I have found the new finger paint very useful with the legs as well as the arm movements. Finger paints are jelly-like, washable colors: red, green, blue, brown and yellow. The child works the paint with the hand or the foot itself, using no brush. Children like to make pictures or patterns with their feet as well as their hands and they get considerable hip and knee exercise, as well as foot motions in doing so. I use a piece of oil cloth on the floor, or by putting a small chair on the kitchen table the paint can be spread directly on the enameled top. In using this material it is important to remember that if the child makes his own discoveries they will be more interesting to him. A child under three will gain pleasure through his motor activity alone. Above this age we see the emergence of shape and form and at four the child will begin to draw people and things. Making samples for him may discourage him—let him gain emotional release through his own activity. You can be sure he will use every bit of voluntary motion he can command within the limits of his ability to relax. Finger paints are not very successful to use with children under three years of age, except in the case of an unusually bright child with an attention span long enough to pay to get your material out. The paints can be purchased under the name of Shaw Finger Paints, from Binney and Smith Company, New York.

Stretching

In treating a three or four year old as a new patient, it is often necessary to stretch the ham-strings. If the child is allowed to do this for himself by long sitting with the knees held and making a stunt of reaching for a toy near the foot or beyond the foot, the stretch reflex can often be inhibited considerably and the hamstrings can be felt to relax somewhat.

It is also useful to hold the child in the standing position with the knees straight and let him pick objects off the floor. In addition to the stretch, the child gets good exercise for his back.

Conclusion

It has been my experience that the child will make use of old skills in his play, particularly where the mother is cooperative; consequently I have found it more useful to spend the treatment time using a variety of games and stunts, all aimed at developing the new skill, reviewing at the end of the treatment the old plays if the child shows no sign of fatigue.

I offer these suggestions with some hesitation, as many of them are common-place activities to one who works with small children. If, like myself, the reader is continually searching for new games, I hope that at least a few of these ideas and suggestions may prove helpful.

A Few Remarks Concerning Painful Feet

Ruth Jackson, M.D.

Painful feet may sound like a flat subject. It is flat in the sense that it deals largely with flat feet. To those of us who are interested in feet, and to the seventy to ninety per cent of civilized people who have foot trouble, the subject is of vital importance. Foot pain is one of the most annoying and frequently disabling conditions to which mankind is heir. If one notes the tremendous number of advertisements pertaining to patent appliances, special shoes, arch plates, corn pads, etc., each guaranteed to cure some type of foot ailment, one may have a relative understanding of the number of people who suffer from painful feet.

The foot as I see it is quite an important member or part of the human body, and should not be forgotten. If a patient has a toothache the physician sends him to a reputable dentist for treatment. If he has an earache he is sent to an otolaryngologist. But if he complains of his feet he is usually sent to a shoe clerk, whose business it is to sell shoes and who knows nothing about the anatomy and mechanics of the foot; or he is sent to a chiropodist, who knows no more about the feet than an

Orthopedic Surgery, Dallas, Texas.

optometrist knows about the eyes. An inestimable amount of damage may be done by thus postponing proper treatment until structural changes have taken place.

A person's disposition may frequently be a direct indicator of the condition of his feet. A patient may tell the physician that he is irritable and cross, cannot get along with people, that he is tired much of the time, that his back aches, and he believes that perhaps his feet are the cause of the trouble. The physician gives him a complete physical examination and finds nothing organically wrong, but usually he fails to look at the patient's feet, and in many instances the trouble lies there.

The etiology of painful feet may be any factor that has to do with destroying the normal balance of the feet. The most common cause is improper shoes, particularly in women. Any condition that may give rise to weakness of the foot musculature and ligamentous structures may cause foot trouble. A recent illness, a toxic state, malnutrition, overweight, overwork, standing or walking on hard floors are contributory factors. Then, of course, there are such conditions as arthritis, tuberculosis, pyogenic infections, infantile paralysis and cereoro-spinal conditions, injuries, congenital deformities, etc., none of which have any bearing on this discussion.

In order to understand and intelligently treat painful feet, one must have a definite knowledge of the anatomy and mechanics of the foot. The foot has two functions: first, to act as a passive support or pedestal for the body; second, to function as an organ of locomotion. In the standing position the weight, through the astragalus, is borne on three pillars, that is, the tubercle of the os calcis, and the first and fifth matetarsal heads. When the foot is in normal relation with the leg, the weight bearing line passes downward through the knee and ankle joints and is continued through the second toe. There is in this position an inner longitudinal arch formed by the os calcis, astragalus, scaphoid, cuneiforms, and inner metatarsals. The outer border of the foot is formed by the os calcis, cuboid, and fifth metatarsal, and is the stronger and more stable side of the foot. There is, also, a transverse arch or anterior metatarsal arch formed by the metatarsal heads, the second and third being on a higher plane than the others in the non-weight bearing foot.

The foot is supported and held in the proper position by muscles, interosseous ligaments, and the plantar fascia. Proper balance of the muscles is necessary to maintain the correct position.

When walking is begun, the foot acts as a lever to raise and propel the body, the calf muscle furnishing the power, and the metatarsal heads acting as the fulcrum. The heel first strikes the ground and as the body comes over, the weight is transmitted forward on the outer border of the foot until the place of contact changes to the ball of the foot, or to the metatarsal heads. The toes then attempt to grip the floor to shove off for the next step. For the arches to be held in the proper position during locomotion, it is necessary that the tibialis posticus and anticus, and the flexor hallicus longus be tightened simultaneously. It is necessary that the feet be held parallel, for toeing out or abducting the feet throws the weight to the inner side of the feet causing strain on the muscles and ligaments.

When the normal balance of the foot is destroyed in any way, certain definite static and dynamic changes occur which result in pain or disability. A knowledge of these changes is very important because they have an immediate influence upon the details of the mechanical restoration of the normal balance. When the equilibrium is disturbed the foot becomes pronated in the following manner: the body weight, planted in the body of the astragulus, being no longer met by appropriate resistances in the form of ligamentous and muscular structures, causes the astragalus to move forward, downward, and inward pressing on the calcaneo-scaphoid ligament. If this continues, the head of the astragalus approaches more and more the surface of support and eventually crosses the inner border of the foot print, making the sole of the foot flat and the inner border convex. As the astragalus moves downward the fore-foot must necessarilly dorsiflex in proportion. The os calsis follows the pronatory lead of the astragalus and from behind the heel is seen to be in pronation. The reaction which the fore-foot receives from the ground is distributed over the five metatarsal heads, and the fore-foot will, therefore, try to maintain contact with the floor in spite of the pronation of the posterior part of the foot. This results in a supination of the fore-foot with depression of the metatarsal arch. Thus we see that dorsiflexion of the fore-foot is compensatory to the downward shift of the astragalus, and that supination of the fore-foot is compensatory to the pronation of the back foot. This results from the fact that the forefoot is held fast by the necessity of plane contact with the floor. All of this seems rather complicated but is necessary for the correct rebalancing of the foot by mechanical means, in that the forefoot must be desupinated and the back foot depronated.

There is another condition resulting from flat feet or from weak feet which is known as metatarsalgia or Morton's disease which must be mentioned in the discussion of painful feet. This condition is characterized by recurrent pain of a cramping character under the fourth metatarsal head, and was thought to be due to pinching of the lateral plantar nerve. If it is due to pinching, however, it must involve the digital nerve rather than the lateral plantar. Depression of the metatarsal arch with lateral pressure of the shoe is thought to cause the pinching. The pain is usually relieved temporarilly by removing shoes and moving the toes. Proper rebalancing of the foot will usually relieve the condition permanently.

We must bear in mind that the pain in these conditions is induced by strain or pressure upon the sensitive tissues of the foot and has no proportionate relation to the deformity. We frequently see painless flat feet and more frequently see an apparently normal foot causing the patient a great deal of discomfort. The latter foot on examination may show only tenderness beneath the arch. This type of foot I call a pre-flat foot because it shows only static strain, but if untreated may progress to a true flat foot. In many cases of flat feet we find strain of the knees, hips, and the lower back. In fact, we may find gastro-intestinal disturbances, which the gastro-enterologists tell us are due to reflex disturbances of the sympathetic system.

The treatment of flat feet, painful feet, or weak feet begins with prevention, and prevention starts in childhood. Most children have well balanced feet, but there are many between the ages of two and twelve who have relaxed, pronated feet which are symptomless. If these feet are untreated, structural changes occur which give trouble later in life. Some orthopedists believe that a child should have routine examinations of the feet the same as of the heart, lungs, etc. The fact that the child does not complain of the feet is relatively unimportant. These feet should have proper shoes and proper training in the development of the muscles. A pronated foot may require, also, a cleat on the entire

inner border of the shoe, and in some cases proper arch supports. Correct walking habits should be taught all children as soon as they are able to understand such instruction.

In adults the treatment is based on the severity of the deformity and the pain. If there is an acute arch strain with much pain, heat and massage are indicated until the pain has disappeared. Oftentimes proper shoes and exercises designed to strengthen the foot musculature are sufficient. Other cases require arch supports and shoe corrections. I use a soft felt and leather arch support with which I have obtained very excellent results. Many people use metal supports, but I find that the felt supports are more comfortable and give the desired results in the uncomplicated cases. The support is only an adjuvant and not a cure for the weak foot, and may frequently be discarded when the muscles are trained to support the foot in the correct position. In those cases showing a more marked degree of static flat foot the deformity may be corrected and the pain relieved by placing a pronatory inner wedge or cleat on the heel, and a supinatory outer cleat under the little toe. If there is pain in the metatarsal arch, a metatarsal bar may be placed on the shoe. There are, of course, some cases which require operative correction, but that cannot be taken up in this paper.

In conclusion the treatment of painful and flat feet is based on an accurate knowledge of the anatomy and mechanics of the foot, and resolves itself into five main factors: 1. Proper shoes. 2. Correct walking habits. 3. Heat and massage. 4. Exercises designed to strengthen the supporting muscles of the feet. 5. Shoe corrections, in the form of well molded insoles or arch supports and properly placed cleats for rebalancing the feet.

The Contour Silhouette

Sara E. Wright

In treating faulty posture we find that photographs of the patient are of great value for diagnostic purposes as well as for comparative study and permanent records. The contour-silhouette shows contour as well as outline. By this method any over-development or under-development of muscle, abnormal position of the scapulae, or unusual prominences may be noted.

Photographs are taken before any instruction in correct posture is given. This gives an accurate record of the patient's natural standing position. The patient is asked to stand naturally while front, back, and side views are taken, and finally another side view is taken with the patient standing in the corrected position. The front and back views show any lateral deviation of the spine, any difference in the level of the shoulders, and any difference in the length of the legs. The first side view shows any antro-posterior defect, and with the second side view taken in the corrected position, we have a good comparative study.

A great advantage of this method is its inexpensiveness. The actual cost of each set of four pictures is less than five cents excluding the cost of the equipment which, when once purchased, is permanent. There is no printing expense since the bromide paper used for the negative is also the final picture.

The equipment consists of a camera, dull black curtain, silver screen, and two bright lights. The patient stands about one foot in front of the black curtain which is used as a background and wears, if anything, a garment of flesh color. A snugly fitting white bathing cap is also worn so that a clear outline of the head is obtained. For the direct light two photographic lights are used: one a one thousand watt projection bulb in a reflector and the other a five hundred watt bulb of similar construction. The large lamp is placed about four

Department of Physical Therapy, Syracuse Memorial Hospital.

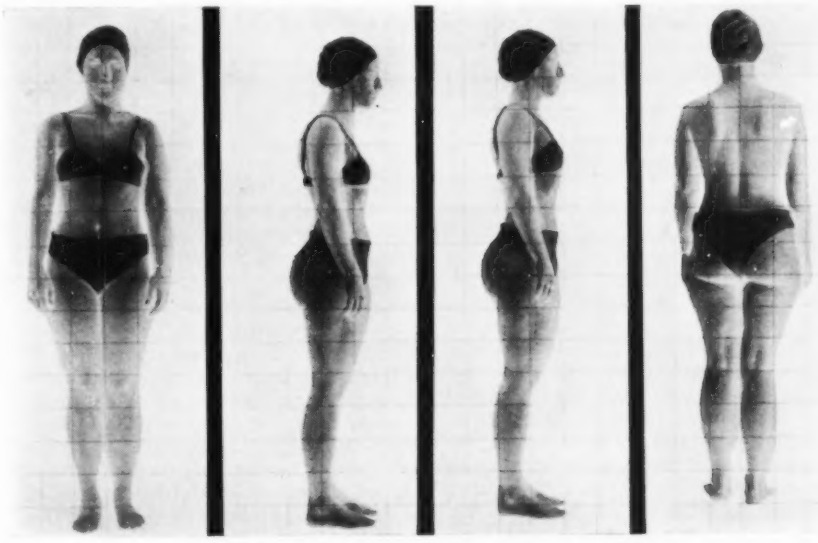

Fig. 1. The contour silhouette. Reading from left to right pictures number 1, 2, and 4 are taken with the patient standing in a natural position and No. 3 is taken with the patient standing in the corrected position.

feet from the patient at an angle of forty-five degrees to the front and side. It is about seven feet from the floor and is directed downward to light the head and upper part of the body. The smaller light is placed directly in front of the larger one but is at the level of the patient's waist and is directed slightly downward to light the lower part of the body. The silver screen, nine feet long by six feet wide, which is used as a reflector to produce indirect light, is hung at the other side of the

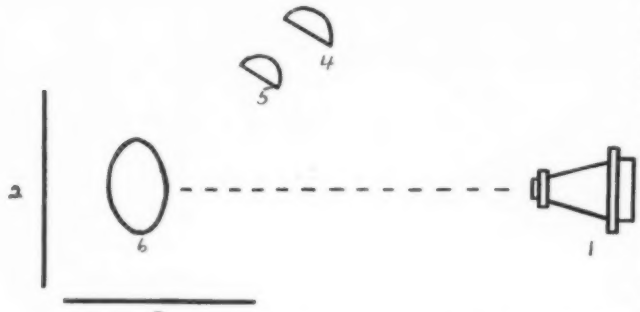

Fig. 2. This diagram shows the set up for the picture. 1. camera. 2. dull black curtain. 3. silver screen. 4. 1000 watt projection lamp. 5. 500 watt projection lamp. 6. the patient.

patient two feet away and at a right angle to the background. Both lights are directed on the silver screen as well as on the patient. This reflected light brings out the outline of the body on the side away from the direct light. It is the inequality of light on the two sides of the subject which makes shadows on the body and brings out the contour in the picture.

The camera is equipped with a ground-glass back and a movable plate-holder which takes a negative seven by five inches. These features make it possible to take as many as four pictures on one negative. In order to do this, the section of the negative not being exposed is protected by movable pieces of exposed x-ray film cut to fit, and placed in the back of the camera immediately in front of the negative. Two seconds is the average exposure time for taking the picture but this varies with the color of the patient's skin.

Forty-five seconds is the time required for developing a bromide negative of this type. Since this becomes the final picture, one must consider the fact that on a negative that which appears to be the left side is really the right side. I have found that Eastman News Bromide, medium, is the best paper to use. The outline is distinct and there is still enough contrast to bring out the contour.

The bromide paper is bordered to make a neat and finished picture and it is lined in one quarter inch squares to facilitate the reading. A stencil is made by placing four pieces of overexposed x-ray film, the size and shape of the desired space for the picture, on a seven by five inch piece of clear glass. These pieces of film are first lined into squares by scratching with a very fine needle. Before developing, the stencil is placed in the developing rack in front of the exposed bromide paper and given one second exposure with a five hundred watt photographic lamp at four feet distance. The exact exposure time however depends upon the fineness of the needle scratches on the stencil making the squares. In order to have clear-cut lines the side of the glass stencil upon which the four pieces of x-ray film have been glued must be in contact with the bromide paper. The scratched side of the film is the side which should be glued to the glass thus leaving the unscratched side for contact with the paper.

We have found this method of great value. The contour is a valuable addition to the silhouette. The pictures are so inexpensive that we are able to photograph all posture cases as often as we wish.

Carbon Dioxide Baths

Joseph M. Schwait, P.T., L.T.

Natural carbon dioxide baths have been used at various health resorts the world over. The spas of Nauheim and Saratoga Springs are highly impregnated with carbon dioxide gas. It is believed that the beneficial effects of the waters are due to the presence of the extraordinary quantities of carbon dioxide gas.

In the last few years, various forms of artificial carbonated baths have been tried out, but have not become very popular with the medical profession. One reason for this was that the methods were impractical and clumsy. In 1930. J. S. Belt saw the need for a practical and effective method of giving these remarkable therapeutic baths. Consequently, he and his co-workers produced such an apparatus which is capable of smooth operation and uninterrupted service. From time to time, improvements have been made on the original machine.

A description of this apparatus follows: The complete carbonic bath apparatus consists of a carbonating machine of twenty gallons per hour capacity. It receives the water direct from the city supply at about 72° F. and impregnates it with carbonic gas under a pressure of about eighty pounds per square inch. The theoretical solubility of the gas under these conditions is about five and four-tenths volumes of gas in an equal volume of water, together with a very high supersaturation. This machine is entirely automatic.

The prepared water flows into a two hundred and forty-gallon storage tank connecting the carbonator with a flow line. When the tank fills, the machine fills, which automatically shuts it off. As water is lowered in the storage tank, the water empties from the machine, which starts it. From the top of the tank to the carbonator is a return line or by-pass through which excess gas in the tank returns to the carbonator and is used up instead of being otherwise wasted. This is provided also with a relief valve so in any event, if the pressure should rise above the preferred working pressure, the valve releases it. This makes the apparatus safe.

An instantaneous water heater is used in conjunc-

Physical Therapist at Baylor University Hospital, Dallas, Texas.

tion with the storage tank, which may be mounted on top if preferred, through which the stored water passes enroute to the tube. This is provided with a thermostat adjusted for hot water of about 110° F., though it may be had hotter if desired. The heater lights automatically upon opening the hot water valve at the tub, and goes out upon closing the same. Cold water at the tub is had by direct take-off from storage by means of a by-pass in the line between tank and heater.

Ordinary soda fountain cylinders of carbonic gas may be used, together with a gas outfit which consists of a pressure gauge and diaphragm type regulator. The diaphragm is adjusted by turning a screw, to whatever working pressure is desired, and thus a constant pressure is maintained.

Being entirely automatic throughout, little attention is required except for the changing of gas cylinders, replacing empty ones with full ones when needed.

The secret of hot carbonic baths lies in the discovery that heating the prepared water under pressure largely retains its saturation when released into the tub.

Indications: Carbon dioxide baths are used for the relief of cardiovascular conditions, as myocardial weakness, due to a dilated, feeble and irritable heart following some illness; cardiac toxemia, angina pectoris and also anemia with dilated heart. Chronic nephritis is often benefited. Hypertension and hypotension readily respond to carbonic therapy. Arthritis and neuralgia often get good results from these treatments. They are also valuable in insomnia and mental excitement generally.

Contraindications: Not suitable in heart diseases with broken compensation, aneurysma, in very marked arterio sclerosis or in acute and subacute endocarditis and in the very old.

Method of Treatment: The bottom of the bath tub is filled with carbon dioxide water at body temperature. Patient gets into tub, making himself comfortable. A towel is placed around patient's neck and then a rubber sheet is placed over the bath tub and around the neck of patient in order that the carbon dioxide gas does not escape. The carbon dioxide water is then turned on and regulated at the desired temperature to be given. The duration of a treatment is noted from the moment the bath is full. After the bath is over, the patient is wrapped in a sheet and put to bed, well covered, for one-half to one hour.

Hypertension, arthritis and neuralgia respond readily to the hot carbonic baths. The first few baths are started a little below body temperature for ten to fifteen minutes each. After the fifth bath, the temperature of the water is increased one degree with each bath until the temperature reaches as high as 110° F.—duration of twenty to thirty minutes. The first ten baths are given daily and then changed to every other day, until a series of twenty or more baths are given. In hypertension cases, the blood pressure and pulse are taken before and after each bath. In arthritis and neuralgia it has been found that the pain actually increases after the first few treatments, but after this first discomfort there is a constant improvement.

In nephritis the same technique as in hypertension is carried out, but here a course of thirty to fifty baths is given.

Hypotension responds to the cooler baths. Here also the blood pressure and pulse are taken before and after each treatment. The bath is started at 98° F. and decreased one degree with each bath until 85° F. is reached. Daily baths are given the first ten days and then every other day.

In angina pectoris, baths at a temperature of 95° F. are given. Care is taken not to give them during an acute or subacute attack.

Neutral baths are also valuable in insomnia and in mental excitement.

Effects of the Baths: The cold and neutral baths have a stimulating effect on the blood vessels and action of the heart. They cause a dilation of the capillaries which is noted by the bright pink color of the skin. They cause a relaxation of the body and produce a sense of restfulness and well-being and a slight rise in the blood pressure. The hot baths cause a profuse sweating over the entire body and an artificial rise in temperature, a relief from pain, a drop in blood pressure and a sense of well-being.

Case Reports

1. Dr. J. G. P., age seventy years, complaining of hypertension. His blood pressure before the baths was 189/96, pulse 76. After a course of twenty baths, the blood pressure dropped to 160/88. He felt better and did not mind the intense summer heat. Six months after the baths, his blood pressure is still down to 164/90.

2. Mrs. J. W. H., age fifty years, complaining of hypertension and rheumatic arthritis of right arm. Blood pressure 180/100 before treatments. After the course of baths, blood pressure was 140/96. Some improvement of the arm and patient in better spirits.

3. Mr. W. S., age thirty-four years, complaining of hypertension, no pep, unable to sleep at night, blood pressure 115/72. After a series of fifteen baths, blood pressure was 135/70, sleeping better, full of pep.

4. Mrs. B., age sixty-four years, complaining of hypertension 220/90 for the past seven years. Took a series of eighteen baths. Blood pressure at leaving, 195/85, sleeping better, able to walk up and down stairs without any effort at all. Also enjoys doing things now.

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The Study of Vital Capacity in Patients with Trunk Deformities

R. G. Hanson, M.D.

In reviewing the literature of scoliosis one is struck by the complete disregard for the patient's general health. The various treatments suggested from time to time, have one simple purpose, that is, the correction of the deformity. The effect of such a correction on the general health of the patient is left to providence.

In an orthopedic hospital, we see a great number of children with severe scoliosis, but among our adult patients a scoliosis is rare. I became interested in these observations in 1926. It was evident that the mortality among scoliosis patients in adolescence must be high. I began to wonder how it would be possible to judge the general health of the children with trunk deformities. I happened to read an article by Dr. May Wilson on vital capacity in cardiac children. I became convinced that the vital capacity of the lungs in the children with trunk deformities could be used as a criterion of the children's health, and could also be used as prognosis for these patients.

I found in writings by Schulthess, Lorenz, Saxl, Bauner, and others that they suspected that trunk deformities impair heart and lungs, and Bachmann autopsied one hundred ninety-seven patients with scoliosis, and found that over eighty per cent had tuberculosis.

Yates, Archives of Surgery, January, 1926, says that resistance, defense, growth, and repair, of the interthoracic structure, as well as their entire organism, are commensurate to and with vital capacity.

Flagstad—Kollman, in B. and J., October, 1928, reported a study of vital capacity and muscles, in one hundred cases of scoliosis. Their conclusions were:

1. That a curve in the dorsal-lumbar region had little effect in vital capacity.

2. That plaster jackets reduced vital capacity fourteen per cent.

3. That reduction of vital capacity was due to embarrassment of the heart, lungs, and reduced mobility of the diaphragm.

4. That vital capacity gives an index of damage done, and operative risk in thoracic and abdominal surgery.

The vital capacity is calculated from the patient's height, and weight, which gives the body surface according to the Du Bois formula. This body surface is expressed in square meters. Three spirometer readings are taken from each patient, and the average of these readings is used.

With the spirometer reading, and the body surface, the vital capacity is calculated from May Wilson's formula, which gives the percentage of normal vital capacity.

In order to check up this procedure, thirty-eight normal persons were tested and they all gave a vital capacity of normal or above normal.

Vital Capacity in Spinal Deformities Expressed in Normal Average.

A study of 1005 patients at the Hospital for the Ruptured and Crippled.

% V. C.	-39	40-49	50-59	60-69	70-79	80-89	100-109	110-120.
Scoliosis								
Functional	43	67	76	74	78	49	33	16	6.
Paralytic	7	14	8	9	4	1		1	
Rachitic	3	4	2	3	1	3	2		
Congenital	4		5	2	7		22	1	
Epiphysitis	4	2	5	9	9	1	6	3	
	61	87	96	97	99	54	43	21—564 including 6	
Postural Defects	29	55	78	69	74	46	39	33	18—441
Total	90	142	174	166	173	100	82	54	24

I have divided the deformities in lateral curvatures of the spine or scoliosis, and anterior—posterior curvatures or postural defects. Of the former the series includes five hundred and sixty-four, of the latter four hundred and forty-one.

Of the scoliosis patients, five hundred and thirty-seven or ninety-five and two-tenths per cent had a vital capacity below normal. This should certainly put us on our guard against impairments of the general health of these patients. However when we see twenty-six and two-tenths per cent of these children have a vital capacity of less than half the normal one, we must do more than just attempt to straighten the local curve. We must realize that we are treating a human being whose life and health may be jeopardized if we insist on focusing all our therapy on the deformity and forget the patient's health.

The paralytic type of scoliosis shows forty-seven and seven-tenths per cent of a vital capacity of less than half of normal. The postural group shows eighty-eight and four-tenths of patients with vital capacity of less than half the normal one.

One of the scoliosis patients with a vital capacity of thirty-seven per cent, in whom I had taken a personal interest wrote me a letter on a Saturday telling me that he had a bad cold and had gone to the hospital. I received the letter on Monday, and on inquiry at the hospital, was told that the patient died on Sunday from pneumonia. This is only one example of many to show how little resistance these patients have when stricken by a disease that taxes their heart and lungs.

Conclusions

1. Nearly all treatments for scoliosis have been confined to the correction of the deformity at the expense of the general health.

2. I believe that the vital capacity can be used as an indicator of the general health of the patient with trunk deformity.

3. That vital capacity is severely impaired in trunk deformities, and should not be disregarded in spinal, thoracic, or abdominal surgery.

4. Without entering into any detailed discussion of the various treatments, I may say that any treatment that restricts the thoracic cage for any length of time, seems to interfere with the elasticity of the cartilage of the ribs. It is very difficult to improve the vital capacity in such patients.

5. Finally I would like to enter a plea for these patients that they should not pay with their lives, for a corrected spine.

Ruptured and Crippled Hospital, New York City.

The Occupational Therapist in Overseas Service

Mrs. Clyde M. Myres

In March, 1918, I found myself, with a small group of reconstruction aides, in hurried preparation for sailing orders.

We were a part of the plans of Colonel Salmon, Chief of the Neuro-psychiatric work with the A. E. F. Although, we were told, equipment was to be furnished at the base hospital in France, whither we were bound, we decided that discretion was the better part of faith and we took with us all the temporary equipment we could manage. My own precious tools went in. The carpenter took her kit. The college art teacher packed her paints and brushes. Money and credit were given us by the National Committee on Mental Hygiene, and at the five-and-ten-cent stores we stretched this fund to the limit in our collection of hammers, saws, soldering-irons, files, pliers, and other unwomanly articles; and elsewhere we bought miniature hand-looms, yarns, dyes, etc.

We had faith in our work and in the yet unexplained plans of the great neurologist in charge and already in France. But to some of our fellow-travelers we, the unclassified and ridiculously heavy laden, may have seemed a little mad—a little cobwebby in the ceiling, as the French would say—so unquenchable was our enthusiasm. The cheerful person given to repeating remarks, told that the commanding officer had asked what that bunch of female employees thought they were going to do in France. Did they imagine they were to set the soldiers at crocheting and knitting? The commanding officer was a harassed soul. And we were nondescripts. As Dr. Williams of the National Committee on Mental Hygiene put it cheerily later, we were pioneers going out with hardly the military status of scrub-women.

Voyaging finally brought us, the occupational group reduced to four, to a valley in the Vosges Mountains. It was late spring. The country was beautiful as a Corot landscape but the interminable passing of troops, and the stark board barracks in the foreground, brought us sharply to our time and task.

Ours was a hospital for neuro-psychiatric cases. The insane went to the psychopathic hospital farther in from the front. To us came the men with functional neuroses which showed in tremors, facial tics, strange twistings of the head and body, partial paralysis, deafness, dumbness, stuttering, extreme depression, etc.

Our orders were to open a workshop at once. After a hasty settling in the crowded but attractive old hunting lodge which was to be the home of the women of the unit, and which was bright with chintz curtains and welcoming flowers (the gift of the Red Cross,) to the workshop we went. Here first sight was not so cheerful. It was a barrack, twenty by a hundred feet, cracks in the floor, cracks in the wall, door off hinges, windows flopping, dust flying everywhere. At one end the hospital carpenter was already installed, his preserves covered with junk—dirty lumber, rusty iron, old stove pipe. Here, also, at certain hours of the day, the hospital barber performed; and the wind that swept into the open door scattered locks of khaki-colored hair (all the Americans in France seemed to be so topped) down the length of the dirty floor. At the other end the Red Cross Supervisor of Gardens—as we afterwards learned, the famous artist Tanner—kept his tools under padlock and key. These were curative instruments, not just spades and rakes and hoes.

To us was assigned the center space. Here our boxes of temporary equipment were stacked. No other equipment was in sight; no benches or work-tables—only dirt everywhere, and a quartermaster superb in his authority who demanded formal requisition for every box, nail, or tin-can that we had naively begun to gather up on sight. Thanks to good fortune, there were no military strings tied to the water faucets. We could at least live up to our status of scrub women without the fear of a summary court-martial. From a friendly cook we borrowed buckets and brooms and cleaned up the place. Up to the time of our arrival there had been no women in the hospital. In other hospitals the men had grown accustomed to the gray-uniformed nurse. But this little group of women, brightly clad in smocks of green and yellow and blue, and seizing promptly upon mop and broom, apparently indifferent to the possibility of losing caste thereby, seemed to be establishing for the first time a little oasis of democratic freedom in the midst of the military. Curiosity soon surrounded us with khaki-clad soldiers. Some we knew, by the tremors, the facial distortions and other painful physical peculiarities, to be patients. Others, who seemed quite normal, we later learned were often in more serious condition, more difficult to cure than those whose neurosis took the grosser form of a physical disability.

Holding our increasing audience, we began to open the boxes of equipment. But we had neither work tables nor benches. Faced with a requisition from the commanding officer, the quartermaster was constrained to the gingerly loan of certain saw-horses, planks, and mess-tables, though he said he might send for them again the next day, if needed. Interested patients helped in the moving.

Few stimulants to the soldiers there were greater than that of outwitting the quartermaster. On the dump-heap one of the men had noticed some old French hospital beds that had been discarded on arrival of American supplies. These appeared over-night in our shop, and were to us treasure trove. "Kangaroo beds" they were called—oblong boxes on four broad legs, the two at the head longer than those at the foot. Hammer and nail and boards spliced the short legs; and behold, with the help of the men, we had fine, level work-benches! Boxes served as seats, and saw-horses and mess-tables went back to the quartermaster.

In a hasty reconnoitre, we had spied a fine large tin can pile, for sanitary reasons in process of being burned and buried; and in kitchen and mess and wards, we sensed a hundred needs that we could fill. By utilizing two large tin cans, a little old rusty grate found in a deserted blacksmith shop nearby, and salvaged bricks for interlining, we soon had a glowing charcoal furnace for the heating of our soldering irons. And forthwith was begun the making of kitchen appliances and utensils. Tin cans, cut and smoothed out and soldered together, made drain pipes and lined the three huge six-foot tubs for dishwashing built by the patients under the direction of our woman carpenter. Funnels, strainers, biscuit and doughnut cutters, flapjack turners and soap dishes were

Occupational-therapist, Beverly Hills Sanitarium, Dallas, Texas.

fashioned. The eyes of the harassed commanding officer grew almost human. The kitchen sink had won him.

Interest among the patients increased. One lank Kentuckian, when asked to help, "'lowed he didn't mind if he did." Men emerged from among them who could show us a thing or two, and almost forgot themselves and their broken nerves in the showing.

Nobody was forced to do anything. That was a principle of the shop. The work was to attract and interest the men; and they, through it, were to be drawn back to the normal, away from the horrors that had shaken and broken them. The atmosphere was for creative self-expression, self-forgetfulness, and then health.

Of course, nobody was in the least interested in washing up the dirty cans, bully-beef or corn-willie, karo-corn syrup, from that precious tin mine out under the burning sun. Many are the roads to Rome. Soon the very prettiest of the girls, in a bright pink smock, was set at the task. Volunteers were again called for; and draft was not only against principle but quite unneeded.

The kitchen, our first interest, and often after, calling upon us for homely conveniences, was only the beginning. Furniture was needed everywhere. For the doctors rough boxes were serving for chairs and desks. Wards were barren of everything but beds; there were no bedside or ward tables, chairs or stools. And furniture was interesting to make. The carpenter, of the long-forgotten thesis, found more volunteers than she could well manage. Economy-stifled yearnings there were for paint and decoration—decoration often of the ultra-futurist school, as revealed in the modest black and white and crimson soap-dish done at this period for an officer's bath. But, even without prospect of paint, orders came in from every corner, thick as Christmas mail. And everything was wanted *tout de suit*—the first expression learned by the American in France.

The doctors, as well as the commanding officer, began to look upon the workshop with a kindly eye; for by this time we had begun, in nerve racking din, to make ash trays, briquets and candle-sticks and vases from our original precious metal and from shell-casings and spent cartridges and bullets and nails and German buttons and buckles—things that made likely souvenirs as well as barrack decorations.

In spite of all the noise, patients came in rapidly. Perhaps at first they hung around the door, or peered in, to rush away immediately in nervous anguish at the sound of hammer and anvil, saw and file. But they seemed always to come back; and some of those most rent at first by jarring sounds were soon observed to be themselves making the loudest din of all. Torturing nerves had dropped below the horizon of consciousness.

But before long we were faced with a calamity. Our temporary equipment, carefully hoarded and supplemented by all possible ingenuity in tool devising, was coming to an end. Tools disappeared or were broken, men waited in line for them. No equipment was forthcoming. The government, its mind full of the endless army under sail and a-foot, pressing toward the Argonne had forgotten us.

Then one day a long, lank Red Cross man appeared, a man of keen eye and few words. He saw the exhibits and the intent faces of the men at work at the benches; and he asked what the Red Cross could do to help. Undismayed, he carefully noted a long list of our needs, ending with the suggestion of a whole new building; and he went off without comment.

In an incredibly short time he returned, laden, himself and his automobile, for all the world like a peace-time Santa Claus, and best of all, with the promise of that new building!

The new building was ready in a few weeks, clean and bright and airy, with windows all about, with office and show-room and commodious tool-room. And the work went on, if possible with more din than ever; for there were always more men. In that terrible September and October they poured in from the front. Plans had to be hastily made for enlarging the hospital; and, as the door of a theatre, men lined up at the door of the workshop every morning before opening hour. Our show-room shelves were soon filled with beautiful or ingenious specimens of craftwork—candle sticks, sconces, paper knives, ash trays, lighters, cigarette cases, scarf pins, rings, watch fobs, book-ends, decorated tin ware, hand woven fabrics, block printed textiles, designs for cards, book plates, wood carving from oatmeal boxes, toys from Noah's Ark, zoologically complete, to aeroplanes, camions and tanks, designs for furniture, and even musical instruments from cigar boxes. The physically weaker men worked at the hand looms and made remarkable bags and table runners. Some of these were artistic; and some were full of feeling, with "Mother", "Sister", "Lou", "Baby," or "Damn the Kaiser" artfully inwrought. About the buildings and grounds, decorated signs began to swing from wall and post. Artistic ability had shown itself, sensitiveness to color and line and design, in men who had been miners and ranchmen and Kentucky moonshiners, and even lawyers.

The work attracted buyers, an indescribable boon to men who had sometimes been for months without receipt of pay. Officials and doctors gave orders and the numerous visitors bought enthusiastically.

A new recreation hut, also built by the Red Cross, brought interesting tasks to the shop in mural decoration and furnishings, stage curtains and scenery and costumes. Here creative imagination had opportunity. Cheese cloth was dipped and dyed for gorgeous costuming. Knightly armor and kingly crowns were evoked from the never-failing tin can pile. And all the cooperators in production doubly enjoyed the play. At Christmas time, long after the armistice the merry hive was agog with the making of original, glittering and glowing decorations for the huge Christmas tree given for the soldiers and for the French children of the neighborhood.

In the workshop every space was filled with men whose intent eyes were fixed unwaveringly upon the object growing under their hands, no matter how many stars and bars were on the shoulders that bent over them to see. The workshop attracted an increasing number of visitors.

The journalistic tribe whirled up in big automobiles and in steady stream. The editors (perhaps sub-editors) of great American magazines, in checked costumes that advertised a route by way of London tailors, showed warm interest in the absorbed men at the benches and kept a weather eye on the souvenirs in the making which they bought with genuine American enthusiasm. A modern Gallic waggery hath it that the French fought for their country, the English for glory, and the Americans for souvenirs.

Our hospital cook was a notable example of American acquisitiveness. This was a personage with whom it was well to stand in. Reckless opening of the cans would destroy half their value. The gentleman put a high price on his dexterity, and demanded, in return, decorations for his room—painted and shaded candle-

sticks, book-ends, vases, block printed curtains, until it must have resembled my lady's boudoir.

In the shop our effort was to keep the atmosphere untainted by morbid suggestion, democratic and normal, and instinct with wholesome interest. We tried to shun all hints of the schoolmarm, the uplifter or the diagnostician. There was no bullying, no prodding and also no coddling.

Democratic it was, with no distinction between officers and men. This cut out a certain type of officer. So great, however, was the fascination of tools that we caught some of them slipping in of a Sunday morning. But many an officer liked the atmosphere quite as well as did the men. One said, on leaving for the front, that should he reach home after the war, that home would never be without its workshop corner. Hand-work had saved him.

And normal we tried to make it. We believed that the normal human environment, or the ideal, if you prefer so to call it, can only be one in which a certain amount of freedom for creative expression gives the mind a chance for wholesome self-forgetfulness and growth.

When the armistice was signed and hopes of return to America grew brighter, more than ever the men made things to take home as well as to sell or give away. But the great thing fashioned in that shop was not toy or souvenir, but steadiness of hand, power of concentration, ability to make manual and moral adjustments, and renewal of self-confidence and courage.

In the shop we soon noticed that the men had certain traits in common. Rich or poor, educated or uneducated, their faces or hands usually carried suggestion of sensitiveness. Often their work showed appreciation of color and line and composition. But artistic or uncouth, they almost all found in the freedom for creative expression an absorbing interest that led toward health. Curative hand-work was no longer a theory. It had come through the test of war.

Never shall I forget young ————. His mind at first incapable of concentration, seemed a kaleidoscope of horrible battle memories, of screaming shells and torn human flesh. Slender, with delicate, sensitive face and hands, the boy had had the usual first horror of the workshop noise. First he came in for a moment to see the work of a comrade; then he tried his unsteady hand; then he had an inspiration for a wonderful cigarette lighter. His hand grew steady. His work was admired and purchased, and followed by other work. He had forgotten, and then found himself.

Some men, accustomed to careless freedom, found quick mental adjustment to the strict routine and perpetual and premptory order of the military, very difficult. Some tried and failed, perhaps were not understood, and fell into a cowed despondency that was poor preparation for the shock of battle.

One morning I found an anvil broken, a cast iron anvil that had been used in the shaping of metals. The man, a new patient who had been working with it, explained. He also had found it broken, just outside the door. I let the matter pass, simply saying that it was strange. In an hour the man came back. "Mrs. Myres," he said, "I must tell you that I broke that anvil. I lied about it. I thought you were going to bawl me out. I've been bawled out so often that, somehow, I couldn't help it. I was afraid."

As the days went on, this man's fumbling fingers grew firm, the glance from his sensitive face became direct and unwavering. And he finally had a chance to show himself what he really was, brave and truthful.

These were a few among hundreds.

A Successful Nurse and Her Mental Patient

Olga Franks Batty

It makes me happy to know that the study of nervous and mental illnesses has advanced to the point where the State Board feels that a nurse is not fully equipped for her work until she has had some little knowledge of this special line of treatment. I am glad of this opportunity to give you a few of my ideas on the relations that should exist between the successful nurse and her mental patient; some of the essential things that we have learned through our work with hundreds of different patients in our sanitarium.

The first and most important requirement of a good mental nurse is patience. The mental case is perhaps the most stubborn, rebellious, contrary, suspicious and just naturally "onory" patient that you can imagine, and if you are not able to control your temper and be sweet and kind under any and all circumstances, please do not try to nurse mental cases. We often say these patients are like badly spoiled children and must be handled in the same way, in fact, a large number of them were badly spoiled children, and have been badly spoiled by relatives and friends all their lives and that is one of the main reasons the patient is in this condition. The ideal mental nurse can be firm and positive but always kind. When you are tempted to lose your temper and boil over with just indignation you must remember this poor creature is mentally sick, perhaps, very dangerously sick, or she would not be here in this institution; and it is your business to be serene and pleasant under the most trying circumstances. It is well to remember that perhaps the relatives have struggled for weeks and possibly months to handle this patient at home, and finally, as a last resort, have sought consultation and treatment elsewhere. Often the relatives are almost "nervous wrecks" themselves when they finally bring the patient into the sanitarium. Here is your opportunity to show your strength of character and mental poise by handling this patient successfully, and your reward will be the results accomplished. Often some of our most difficult patients turn out to be very lovable characters when they get back to "normal." After all, is it not just a little foolish to take offense at the ravings of a delirious patient, whose sick mind is tortured with confused ideas and delusions? Once you lose your temper and show your patient that you are angry you might as well give up the case. These people are very psychic and often remember details that you would think they would

Superintendent Beverly Hills Sanitarium, Dallas, Texas.
Address given at the Methodist Hospital Training School.

forget. In this connection, it is very important never to make any depreciating remarks or sarcastic illusions about your patient or her illness, especially where it might be heard by the patient. You may think she is "crazy" and will not remember, but she will never forget, though she may later forgive, your indiscretion.

Another important requirement, almost as essential as patience, is self-confidence. You must never have the slightest fear of the patient, but you must dominate the situation completely and must expect your requests to be complied with at all times. Here again you must be firm but kind. I have seen a little ninety-pound nurse handle a big two hundred-pound man and make him mind like a child and do just what she told him to do, because she had the self-confidence to know he would mind, and he knew it also. And why should she not be able to do this when she has her full faculties to work with, and he is a mental and physical "wreck." Here again you see the characteristics of the spoiled child. If he ever refuses the nurse's direct request, and can get by with it, that nurse had better transfer to some other case.

To the accomplishments of everlasting patience, self-confidence and a strong and vivid personality we must add another very necessary requirement, tact. However strong a personality you may have, it is necessary to get the complete confidence of the patient. Never antagonize but always persuade. A large majority of these patients are very suspicious anyway; that is their illness. They feel they should not have been taken to the sanitarium in the first place, and that their people have put them there to get rid of them. Often they think everybody is trying to poison them, and, therefore, refuse to take any medicine, food or drink. It is a very useful faculty in a nurse to be able to get the confidence of such a patient. If you can get his full confidence you have solved the problem of how to get him to eat or drink or take medicine. Often patients will confide in a nurse of this kind where they will not talk to the doctor or the superintendent. In this way, a nurse is very valuable in getting the history of the case, and though she may know little of psychoanalysis she can often help materially in getting at the cause of the trouble. Our most valuable nurses are those who can make notes of all the little remarks and illusions of the patient and report them to the doctor.

Of course, we have cases where even the doctor or the superintendent can get no cooperation from the patient; then a certain mount of force has to be used. Cases of manic depression often talk and act like a person who is intoxicated. They are very noisy and destructive, sometimes tearing their clothes, or the bedding, taking furniture to pieces or even tearing the paper off the wall. In these cases, for the time being, any kind of argument is useless. It may be necessary to restrain them to the extent of being tied down hand and foot and being fed with liquids through a tube. However, these cases will often quiet down remarkably in two or three days by being restrained and isolated. Meanwhile the tactful nurse can help a great deal in soothing and quieting the patient. This must be done as quickly as possible in order to avoid a complete nervous exhaustion. Nervous exhaustion is what we fear more than anything else. Patients will often run a high temperature and sometimes die from simple nerve exhaustion. Though the patient must have management and discipline, though the nurse must be positive and expect obedience, still through it all the nurse must be kind and sympathetic to the extent that the patient will learn to respect and love her. What is needed and must be accomplished in these cases is hours, days and sometimes weeks of quiet and rest and sleep, and plenty of good nourishing food.

Another requisite of the ideal nurse for this class of cases is to be able to handle the relatives and friends successfully. Often this is more difficult than handling the patient. It is a new experience to them. They have a dread of taking their loved ones to an institution of this kind. They are often ashamed that any relative of theirs has had a nervous break-down. They feel it is a sign of mental weakness, and if possible wish to keep it a secret from their friends. They doubt if the patient will ever get well. They are very much afraid that their loved one will be abused and ill-treated. The really valuable nurse must be able to meet these relatives, allay their suspicions, explain the symptoms and methods of treatment, convince them that they should not be ashamed of an illness of this kind. It is true that this is no small order and takes a combination of a strong personality, dignity, self-confidence, tact, persuasion and endless patience. When this has been accomplished you have gained the admiration and eternal friendship of those relatives. It is surprising how little the average layman knows about mental trouble. Dr. Schwenkenberg tells of a recent catatonic case at the jail. This type of illness takes the form of rigid, statuesque positions. The patient often will stand for hours with arms extended staring rigidly into space. The sister of this patient came in to see him and slapped him severely saying it was all put on and what he needed was to be handled roughly. Those familiar with these cases know that this poor thing could not refrain from taking those odd postures.

Then comes the trying period of convalescence. The patient feels better and wants to go home. She alternates between periods of depression and spells of homesickness. Here is where the good nurse must use a great deal of persuasion, tact and ingenuity. The patient wants to be told again and again that she will get well and wants to know how long it will take. The nurse must entertain and keep the patient busy with games of all kinds; exercises, occupational therapy, physical therapy are used to great advantage. These all help in diverting the attention from disturbing mental conflicts and creating interest again in the common things of life. Recreational and diversional therapy have a very important part in the life of the patient during the convalescent period. Few people know how to play, and pool, lawn tennis, croquet are welcome diversions which give exercise and help pass the time away. Here again the relatives are to be dealt with. The patient looks so well; finances are limited. Sometimes the institution is accused of holding the patient only from a money standpoint. Here the nurse must meet this new situation by citing instances of patients, who have gone home too quickly, against the doctor's wishes and have had serious relapses, often committing suicide. She must create faith in the doctor and his judgment since he has had years of experience in this work. She must explain that extreme caution is necessary to avoid over-stimulation and that the change from complete rest and isolation to normal activity must be very carefully graded. Your success at this time is the supreme test of your patience, tact and powers of persuasion.

Now just a word about mental cases on which you may be called in the home. You should be able to recognize the first signs of mental disorder and call this to the attention of the family. You should tactfully suggest that the patient must be taken entirely away from the home environment, that the treatment of mental disorders requires an intimate knowledge of the structure and functions of the brain, of the mechanism of the

mind, a familiarity with the character formation and personality and reactions of the individual. You should impress upon the relatives the importance of early treatment in mental disorders in order to avoid days, weeks and even months of suffering to the patient and heavy expense to the family. Mental disorders, once they have reached the acute stage must run their course and may become chronic or result in death. Many a poor creature in the insane asylum today could have been saved if the case had been properly treated in the early stages under intelligent, dependable observation and with an early diagnosis.

Subluxation of the Apophyseal Articulations

With Bony Impingement As a Cause of Back Pain

Lee A. Hadley, M.D.

Disturbances in and about the intervertebral foramen as a cause of pain in the back have recently occupied the attention of various authors. Sicard has portrayed the intervertebral foramen as the "cross roads of neuralgia," an expression well calculated to direct attention to this small area as the site of pathology frequently causing both localized and referred pain of a troublesome nature. Additional information has become available through the development of improved technique in the roentgenographic examination of the spine.

Anatomically, the foramen is bounded anteriorly by parts of the vertebral bodies and their interposed disc, above and below by the pedicles and posteriorly by the superior and inferior articular processes and the apophyseal articulations between them. These latter are true diarthrodial joints with a joint cavity, articular cartilage, synovia and capsule and are subject to the different disturbances which may involve any true joint. Ghormley,[6] in a comprehensive discussion of the subject has mentioned arthritis of these joints as a cause of pain in the back; while sprains, with or without tearing of the ligaments, are noted by Key[9] as a frequent cause of posttraumatic back pain.

This communication, however, is concerned principally with a study of subluxation of the apophyseal joints as a cause of localized or referred pain. In order that sliding of the posterior articulations past each other may take place, either lumbar lordosis or thinning of the intervertebral discs is necessary. In cases of the former the weight instead of being entirely borne by the vertebral bodies is partially supported by the posterior articulations of the spine, placing a strain upon their capsules. This not only produces pain but decreases what Brown[3] describes as "the factor of safety in motion." When thinning of the disc takes place in the dorsal region kyphosis results, possibly because the articulations of the ribs do not allow slipping of the posterior articulations.

Thinning of the intervertebral disc does not cause pain directlly, there being, according to Jung and Brunschwig,[8] sensory nerves only in the ligamentous structures of the spine and not the discs. The resulting apophyseal subluxation, however, is probably capable of causing pain in at least three different ways: tension upon the capsular ligaments, already mentioned; encroachment upon the size of the lumen of the formina; and impingement of the ends of the articular process against the pedicle above and the lamina below, respectively. These bony structures, covered with periosteum, do not constitute a suitable bearing surface for the rather sharp ends of the articular processes. Pressure at these points is painful and may produce either erosion or sclerosis of the bone.

The condition is best visualized in the lower lumbar region by oblique stereoscopic roentgenograms made with the sagittal plane of the patient at an angle of forty-five degrees to the horizontal plane. The tube should be centered over the depression on the abdominal wall just medial to the anterior superior iliac spine.

Thinning of the disc may result from herniation of the nucleus pulposus either into the body of an adjacent vertebra or into the spinal canal as first described by

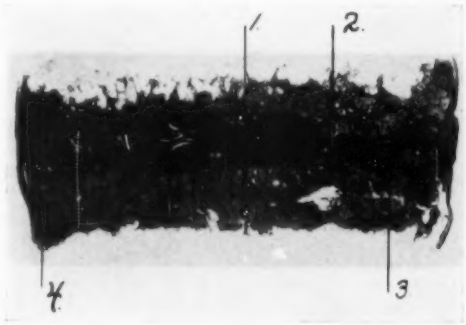

Fig. 1. Fibrotic degeneration in a seventh dorsal intervertebral disc of a patient with marked spondylosis. 1. Invasion of the disc by new bony tissue developing from the superimposed vertebral body through a break in the cartilaginous plate. 2. Cancellous bony structure with trabeculae and marrow cells which has replaced the disc structure. 3. Broken margin of the cartilaginous plate. 4. Bony spur formation on the vertebral body; there is no evidence of inflammatory reaction in the fibrous tissue about this point.

Schmorl and later by Calvé and Galland,[4] Keys and Compere,[10] and Sashin.[12]. Thinning may also be the result of a fibrotic degeneration of the disc. This is probably an aging process. According to Beadle,[2] who has reviewed Schmorl's work, breaks occur in the cartilage plates of the disc, allowing granulation tissue to make its way from the vertebral body into the disc substance displacing a portion of it (Fig. 1). Subsequently, with fibrosis and even ossification of this granulation tissue, the disc loses its double function of buffer and hydrostatic ball-bearing and becomes a thinned, fibrotic structure, less suited to sustain weight. To aid in the support of weight and particularly to lessen movement, spur formation takes place about the adjacent vertebral margins. Beadle, also Turner and Tchirkin,[13] feel that spur formation is not an evidence of arthritis but rather of a purely degenerative process, that the spurs are an attempt at stabilization and that spondylosis is a more suitable term than spondylitis.

With immobilization of the disc in front a similar process necessarily takes place in the two corresponding posterior articulations, marginal hyperplasia and exos-

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tosis being formed. This spur formation, either from the disc or the posterior articulations, decreases the anteroposterior diameter of the foramen (Fig. 2). With thinning of the lumbar discs apophyseal subluxation takes place, with a resulting decrease in the interpedicular diameter of the foramen. Foramen encroachment according to Danforth and Wilson,[5] produces pressure upon the nerve roots, with a resulting radiculitis such as sciatica, meralgia paresthetica or pain referred to the distribution of the superior gluteal nerve. Local symptoms of pain, tenderness, muscle spasm and limitation of motion are present in the back directly over the area affected. Muscle spasm tends to maintain the over-riding causing a continuance of the pain.

TREATMENT

Various authors stress the necessity of conservative treatment. For the acute cases rest on a firm bed, with or without extension, heat, and light massage are indicated. Ambulatory cases require support, either strapping, a brace or even a jacket. As previously reported,[4] radiation therapy in small doses applied to the nerve roots is of distinct benefit in certain cases suffering from radiculitis due to root irritation without marked bony encroachment. Older persons react better to conservative treatment than younger ones. For those who have been unrelieved by conservative treatment, operation is advised by Ghormley, Williams and Yglesias,[14] Putti[11] and Ayers.[1] Spinal fusion is the operation suggested, although enlargement of the foramen by removal of the articular facets may be required subsequently in cases with referred pain unrelieved by this procedure.

Several cases of apophyseal subluxation have been encountered recently. Case I was the first one discovered while Cases II and III illustrate definite roentgen evidence of reaction at the point of bony impingement.

Fig. 2. Sagittal section of the lumbar spine (same patient as in Fig. 1) showing loss of the normal oval shape of the foramina through encroachment by hyperplastic bony production both anteriorly and posteriorly. 1. Transverse intraforaminal ligaments frequently observed in the lower dorsal and upper lumbar regions. 2. Third and fourth lumbar foramina decreased to about one-third normal size.

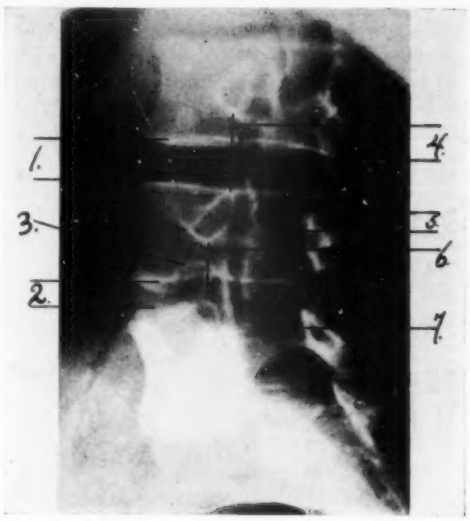

Fig. 3. Case 1. Apophyseal subluxation with impingement. 1. Third intervertebral disc of normal thickness. 2. Thinning of fourth disc. 3. Old herniation of nucleus pulposus into lower portion of fourth body. 4. Normal distances between tip of fourth superior articular process and under surface of third pedicle. 5. Normal distances between tip of third inferior articular process and lamina of fourth lumbar. 6. Tip of subluxated superior fifth process impinging against under surface of fourth pedicle. 7. Tip of subluxated inferior fourth process impinging against lamina of the fifth. 8. Normal interpedicular diameter of third foramen. 9. Interpedicular diameter of fourth foramen which is normally smaller than the third but is additionally contracted in this spine.

CASE I. A male, aged forty, injured October 22, 1932, when the automobile truck which he was driving overturned. Thereafter, the patient complained of pain and exhibited tenderness and muscle spasm of the left lumbar region upon attempted motion. Roentgen examination made six months following the injury revealed herniation of the nucleus pulposus into the lower portion of the fourth vertebral body with thinning of the disc between this and the fifth vertebra. Films of the spine made three years previously revealed the herniation surrounded by a sclerotic bony reaction to have been present at that time. Stereoscopic oblique roentgenograms (Fig. 3) showed subluxation of the apophyseal articulations opposite the thinned disc with impingement of the ends of the articular processes against the pedicles above and the lamina below. There had been no pain immediately previous to the accident but it had been constant the entire six months following it. Upon discovery of the condition traction of the spine was made in the horizontal position and the patient stated that his pain was relieved for the first time since the accident: downward pressure upon the shoulders aggravated it, however. Following traction for twenty-four hours he was immobilized in plaster for thirteen weeks and has worn a back brace since that time. He has not been completely relieved of all pain but it is much less and he has been able to return to work.*

In a consideration of this case one feels that probably the disc was thinned long before the accident but that injury was sustained sufficient to allow the impingement shown on the oblique stereoscopic films.

CASE II. Male, aged forty, had complained of lumbar pain for the past three years, with sciatica on the right side recently. There was muscle spasm and limitation of motion with tenderness to deep pressure over

*This patient wore the brace for about one year, at which time it was discarded. He is now free from pain and limitation of motion and is working full time, apparently completely relieved.

Fig. 4. Case II. Bony sclerosis in the lamina of the fifth lumbar where the squared off interior articular process of the fourth has impinged against it.

the lower right lumbar region. In addition to a so-called congenital sacralization of the lowermost lumbar vertebra, the roentgen examination revealed a subluxation of the lower apophyseal articulations. The inferior articulation of the fourth on the right side had become squared off at the end and impinged against the lamina of the fifth below as shown by bony sclerosis in the latter at the point of contact. There was also impingement against the pedicle above and the foramen was encroached upon (Fig. 4).

CASE III. Male of middle age, in June, 1927, following an automobile ride of three hundred miles developed pain in the hip and sciatica on the left side. Upon roentgen examination two months later, I reported a hypertrophic arthritis between the fourth and fifth lumbar bodies. The patient was relieved at that time by support to the back. Six years later, in June, 1933, following exertion there was recurrence of the left sciatic pain and some pain in the right thigh. Examination revealed tenderness over the spinous process of the fifth lumbra vertebra, muscle spasm and limitation of motion with inclination of the back toward the right. This condition with respect to the left-sided sciatica is described by Putti as contralateral scoliosis in which relief is sought by an attempt to enlarge the lumen of the intervertebral foramen. Oblique roentgenograms (Fig. 5) revealed apophyseal subluxation with impingement on the right side of the fifth superior articulation against the under surface of the pedicle of the fourth into which a small notch had become eroded. Upon re-examination of the old films (Fig. 6) a similar condition was discovered one space lower between the articulation of the sacrum and the fifth pedicle on the same side. The recent symptoms were relieved by physical therapy and strapping. Obviously, in this case the impingement was not the cause of the sciatica and may even have developed as a result of the contralateral scoliosis. The tenderness to pressure upon the fifth spinous process and other local symptoms were doubtless in part at least due to the subluxation.

Fig. 5. Case III. Apophyseal subluxation of the fourth lumbar seen from posterior showing notch eroded in under surface of fourth pedicle by tip of superior articular process of the fifth on the right side. Impingement against the fifth lamina is visualized.

SUMMARY

1. The apophyseal joints of the spine are true joints and as such may be painful as a result of arthritis or trauma.

2. Lumbar lordosis places increased weight upon the posterior spinal articulations and increased strain upon their capsules.

3. Thinning of the intervertebral discs, either by herniation of the nucleus pulposus or fibrotic degeneration, allows the vertebral bodies to approach each other and a subluxation of the apophyseal articulations to take place.

4. Subluxation of the apophyseal articulations may produce pain by strain upon the capsules, encroachment upon the size of the intervertebral foramen, or impingement of the ends of the articular processes either against the pedicle above or the lamina below.

Fig. 6. Case III. Anteroposterior view showing notch eroded in under surface of the fifth pedicle by impingement of the articular process of the sacrum. Note inclination of the spine toward the right.

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Our Common Enemy, the Cold

Oscar M. Marchman, M.D.

Over fifty per cent of all acute and chronic diseases that affect children are due to the common cold or coryza and its complications. This dease is not a respecter of age, and like a shadow it follows us from babyhood to the grave. It is a disease of universal prevalence though it is more severe in climates of changeable weather. It is the keystone to a complex structure of ills that befall the little ones.

Predisposing causes: rapid changes in weather, exposures to drafts, insufficient or improper food, sinus infection, diseased tonsils or adenoids, exposure of parts of the body during the winter, overfeeding, especially of sweets, results in gastro-intestinal upsets thereby lowering vitality. An infection from any disease such as hay fever or asthma or an endocrine disturbance is a frequent cause. Many a complication such as chronic sinus infection or middle ear disease which may terminate in a mastoiditis or even a brain involvement, may result.

Preventive measures: The acute cold is a specific acute infection in itself and is rapidly transmitted from one to another by kissing, etc.

Management of colds: Diet plays a very important part in the prevention and treatment of upper respiratory infections. Vitamin A has a direct effect in maintaining a healthy condition of the mucous membranes of the eyes, ears, nose and throat and is found in halibut oil, codliver oil, prunes, spinach, carrots, and most fresh vegetables and citrus fruits. Vaccines are of some value but cannot be depended on. Ultra-violet helps build up the resistance but gives no immunity. Rest in bed, milk of magnesia as a daily laxative, plain mineral oil for the nose, plenty of fluids and an easily digestible diet are indicated. Regular health examinations are not costly; they are economical and should be carried out in all families.

Dallas, Texas.

N. B. by Miriam Van Tassel, Beverly Hills Sanitarium, Dallas, Tex.

Some rather interesting experiments are being carried out in the treatment of acute coryza, both with and without the complications of chest involvements. Artificial fever is being and has been used rather successfully in the treatment of paresis and arthritis. We have attempted to treat coryza with it. This experiment is still in the embryo stage but shows signs of a normal development. The artificial fever produced has not been to the levels nor intensity attained in the treatment of other diseases, having been raised only two to three degrees above normal and maintained for a short period of three to four hours; however the cold seems to be held in leash and improvement has been noted. In its present status we cannot absolutely make any definite claim for its merits; however it looks promising.

Is It Advantageous for the Physical Therapist to Be the Nurse or Vice Versa?

Miriam Van Tassel

It has always been maintained and advocated that the perfect treatment consists of complete follow-up; however, when the physical therapist turns nurse is it an advantage or is the follow-up too much of a one?

In the hospital the physical therapist sees and treats the patient once or possibly twice a day in accordance with the type of treatment, etc., depending on the nurse to "carry on" with regard to posture or position of parts and use of the parts if so indicated. However, if the patient is a clinic case, or out-patient, it is usually up to the parent or someone in the family to assume that responsibility.

We all know that there must be a continuation of the treatment—that the short interval during the day which the actual physical therapy treatment involves is in itself too short and there must be a continuous prolongation of the treatment during the other hours of the day, and we know that with the majority of cases it is necessary for the patient to do his part, and if he cannot or will not do it, someone must see that he does.

We have often, I am sure, talked our patients and ourselves "deaf, dumb and blind" in an attempt to make them realize the importance of "carrying on" in the restoration of function. Perhaps it has occurred to us that the ideal way of being certain that our orders are enforced is to be with the patient continuously. From the physiotherapeutic point of view this may be best, but from the psychological point, it is my opinion that each becomes "burnt out" on the other and the patient grows stale in his efforts.

From personal observations I have definitely arrived at the conclusion that ideal physiotherapeutic treatment consists of the physical therapist as a physical therapist and not as a nurse. Let her give and supervise the treatment with its follow-up but let her maintain her role of physical therapist.

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Editor-in-Chief: IDA MAY HAZENHYER

Assistant Editor: MARGUERITE SVEBILIUS

Business Manager: GERTRUDE BEARD

Associate Editors

MARTHA E. HINDMAN
342 Lowry Bldg., St. Paul, Minn.

SUE ROEN
2417 So. Hope St., Los Angeles, Calif.

BLANCHE B. SINN
112 E. Providence Rd., Aldan, Pa.
Clifton Heights P. O.

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Notice

The publication office of THE PHYSIOTHERAPY REVIEW is now at 303 E. Chicago Ave., Chicago, Ill.

The editorial staff of THE PHYSIOTHERAPY REVIEW regrets exceedingly to announce the resignation of Martha Hindman as business manager. She and Helen Foss have done splendid work in this office. But we are glad to announce, at the same time, that Miss Hindman will continue on the staff as associate editor.

The Fourteenth Annual Convention

From the moment Dr. William Martin welcomed the American Physiotherapy Association to Atlantic City early Tuesday morning until the close of the last business meeting on Thursday afternoon, the convention was a splendid success. And, undoubtedly the week-end in New York and Philadelphia and Washington added much to the satisfaction of those who could accept the invitations of the three chapters in these cities. We have not heard from the week-enders but we suspect that for them the convention did not end on Thursday.

To Miss Worthingham, national chairman, we extend gratitude and much praise for the exceptional program she prepared; and to Mr. Campbell, local chairman, and to the three hostess chapters we are indebted for the arrangements which made our visit in Atlantic City one of comfort and pleasure and profit.

After the business meeting on Tuesday morning, came the luncheon for the discussion of chapter problems. But—the news came to us through the secret reporter—there were few chapter problems discussed. Perhaps this was due to the fact that the luncheon was held high up in the Ozone Room of the Hotel Dennis. After all, when the lungs are filled with ozone and the salt sea winds have cleared the dusty corners of the brain, problems disappear as if by magic. Those erstwhile harassed chapter officers forgot the difficulties they had planned to unburden before fellow officers and before the national committee.

However, the frivolity of the luncheon and that of the tea in the afternoon, was well balanced by the seriousness of the three papers presented in the evening of that first day. We already have Dr. Lowman's paper for publication in this issue, and both Dr. Coulter and Dr. Gotten have promised to have theirs ready before long. In fact, we are hopeful of obtaining most of the papers read during the convention so that the members who could not be present may at least read what they could not hear.

The panel discussions planned by Miss Worthingham and arranged by Mrs. Brown and Miss Greene and Miss Rathbone, were something of a departure from our usual programs; and they were most interesting. The panel on Wednesday morning had to do with fractures and bone regeneration. It was opened by Dr. Lindsay of Yale University; and Dr. Compere of Chicago University and Dr. Griswold of the University of Louisville, followed. The latter two papers appear in this issue.

Thursday morning the first panel was in the field of mental diseases, and the various papers touched upon the possibilities of physical therapy in the work with mental patients. The general opinion was that physical therapy could be of appreciable value to these patients, especially when combined with recreational work.

The second panel on Thursday morning dealt with that much discussed question of body mechanics. Since this was the most informal of the panels, we shall not be able to give as much of it to our readers as we would like; but in a later issue, we shall attempt to give as much as possible. For the present, we can only assure those who were not present that they missed something exceedingly worth while.

In his talk on bone regeneration, Dr. Lindsay said a diet must be adequate, not special. So a successful convention must be adequate in meeting the needs and desires of people interested in different phases of physical therapy. Our program chairman saw to this. On Wednesday afternoon, a moving picture program varied the programs of papers and panels, and showed, graphically, what some of our members are doing with various types of work. The program chairman also arranged for the fine posture booth in the scientific exhibit at the convention hall of the American Medical Association.

This year the banquet did not, as usual, "top off" the convention—it was placed in the middle of affairs like a delightfully refreshing filling in a toasted sandwich. It was nice, too, to return to the "formal dinner" after the two or three years of depression when the members came in "just summer dresses" and the speakers appeared in business suits. It all made one think the depression was over.

Nor was there any depression of spirits up there in the Ozone Room. The talk was as festive as the dress; and the dinner itself might have been served in the good old days before 1929. In fact, the depression was so thoroughly vanquished that the speakers even burst forth with poetry—another departure from the conventions of the past. And the poetry was as acceptable as the fancy dresses and the formal suits; for, what peoples are more in need of the poetry of life than are physical therapists and doctors! Dr. Larer, toastmaster, introduced the poetic element, but we know that neither Reverend Gaunt nor Dr. Krusen merely followed example—they had their verses memorized.

Only one thing was lacking at this banquet—Mr. Carter's other story.

The business meetings of the last two conventions were taken up by consideration of the new constitution. Since that ever recurring business was disposed of

at the Cleveland convention last year, other problems could be discussed more freely this year. Miss Fackt presented the Code of Ethics, which appears in full elsewhere in this issue; and the Code was accepted. Miss Brown spoke of the difficulties of the employment bureau, and Miss Grunewald, membership chairman, introduced two questions.

In order to facilitate the efficiency of the employment bureau, it was decided that each chapter should have its own local bureau, and the national office should be used as a sort of clearing house. It was argued that chapters know their local conditions best. They are in closer contact with local needs and calls and can more quickly make connections between open positions and members asking for positions. The national office will come in with its help when a member wishes to change locality or when the chapter cannot fill the need.

Miss Grunewald stated that only about fifty per cent of the accepted applicants for membership finally paid dues and became members. Several possible reasons for this were advanced. But to avoid complications arising from such situations, and to cover the trouble and expense of considering applications, it was decided to charge an application fee of two dollars. In the event the applicant is not accepted, the fee will be retained; if the applicant is accepted, the two dollars will apply toward the dues. It was also decided that dues for new members will be prorated after the first quarter of the fiscal year. This plan was thought only fair because often applications are not completed until late in the fiscal year.

The REVIEW problem, likewise, came before the convention, and definite plans were made to establish a more efficiently workable system than has heretofore existed. As stated in the editor's report, the problem arose out of Miss Hindman's resignation and out of her appeal to establish a central and permanent office which could continue to function undisturbed even when an office is changed. Miss Beard, former business manager, was persuaded to take the job back under the new plan. The business and editorial offices will be combined in one central place of publication, and a paid secretary will take care of all routine business. The REVIEW must, however, operate within its budget, which budget includes three dollars from each member's dues, the subscriptions to the REVIEW, and the proceeds from advertising. The editor made an earnest plea to the chapters to help in the work of the REVIEW by obtaining subscriptions and acceptable advertising. (An appeal *can* be earnest even if not effective. But the REVIEW staff hopes that the chapters will consider the earnestness, and *make* the effect.)

Address of President

It is with a feeling of profound respect that I come before you today. Although a charter member of this organization, this is the first convention it has been my privilege to attend. I travel back in memory to a time, shortly after the World War, when this association was started. It was organized with high ideals and high professional standards. It has steadily advanced until today it represents the Pi Beta Kappa of our profession. Its members have been forceful individuals with a drive which makes it the dynamic organization of which we are proud to be members.

It is by competition that our standards are kept high. It is by cooperation that we grow. It is by squarely facing problems that our strength of character is given the supreme test.

There is a feeling of aliveness in this association of which you are aware when you meet its members, attend its meetings, or read the REVIEW. Compared with other national honorary professional associations, our membership is small, but in proportion, the contribution of its members to the profession in research and study is unusually large.

Our ambition is not to add members although the importance of new members is not overlooked, but to add those to our number who have a scholarly and ethical outlook. Not those who ask, "What do we get out of the Association?" but rather, "What can we contribute to the profession through the Association?"

We want to hold our members but we are conscious that there is a natural culling process with the result that the quality of our membership is constantly advancing. It is, I believe, in this high standard of work, in continued research, in the contribution of creative material, rather than any form of legislature or politics that we as members of the American Physiotherapy Association shall continue to receive increasing recognition from other professional groups.

A fine quality of work has been set before us, your officers, by those who have held office before us, and we mean to pass on the torch glowing and alive to those officers who will follow us.

Our greatest endeavor has been to look at the problems which have come to our attention: 1st—From the viewpoint of the chapter which is experiencing them. 2nd—From the viewpoint of the Association as a whole. And to deduct from these, the most logical conclusion of which we are capable of making.

We have certain things we offer you:

1. Sincerity of interest and purpose.
2. Open mindedness.
3. Cooperation.
4. Unlimited hours of work.

We ask certain things of you:

1. Understanding.
2. Cooperation.
3. Helpful criticism.
4. Response.

The year 1934-35 has certain characteristics of its own which I should like to mention:

1. We have a functioning Board of Directors scattered about the country. After each meeting of the officers, a bulletin is sent to them telling them of the questions which have come up for discussion and summarizing the information on each subject. Their reaction to the problem is sent back to us and a final decision is formed. It is hoped that this bulletin may become an important factor in the business of the Executive Committees which you may select.

2. A paid secretary has greatly facilitated the work of scattered officers to the end that the clerical work recommended at last year's convention has almost been completed.

We regret that Miss Hindman is resigning. Plans for the future of the REVIEW are now under consideration. In those first days of our organization, the REVIEW was the A B C book of an infant association; now it has become a publication of which we are proud—an expression of our professional standards.

To the Chapters—May I urge that you find out through the REVIEW those who are members-at-large in your localities and by personal letters and calls, keep in touch with them and invite them to become members of your chapters.

To the Members-at-Large—We invite you to call upon the National Officers for information whenever it is needed or desired, and we urge you, too, to join the chapter nearest your place of residence.

We are fortunate in having many of our Board of

Advisors in Atlantic City for the Medical Convention. Dr. Lowman, Chief of Staff of the Orthopedic Hospital of Los Angeles, has come to Atlantic City from the orthopedic meeting in Philadelphia especially to address our meeting this evening. Dr. Coulter of Chicago, Dr. Clark of Long Beach, and Dr. Happ of Los Angeles will be with us tomorrow evening. Dr. McKibben, Dean of Medical School of the University of Southern California, sends you his greetings and expressed a willingness and desire to take an active part in our organization.

We are busy people, that is why we are alive, that is why we have time for things worth-while, that is why we have time to pause here, and now for a day or two to gain new inspiration, make new friends, renew old ones; and to go back to our offices, our hospitals, and our schools with renewed spirit in order that we may add to our work the joy of living.

MRS. SARAH U. COLBY.

Report of Executive Committee

Eleven special and two regular meetings of the Executive Committee were held during the year.

Time	Kind	Place	No. Present
June 28	Special	Los Angeles	4
July 18	"	"	4
August 24	"	"	3
September 7	"	"	5
October 5	"	"	4
November 2	"	"	4
November 10-11	Regular	Laguna Beach	6
(Margaret Campbell, Past President attended)			
December 30	Special	Los Angeles	4
March 2	"	"	5
April 20	"	"	4
May 4	"	"	5
May 26	"	"	4
June 10	Regular	Atlantic City	

CHAIRMEN OF STANDING COMMITTEES

The following members were chosen to serve as chairmen of the following committees:

Mildred Elson (re-appointed), Education.

Lucile Grunewald, Membership.

Hazel Furscott, Legislative.

Florence Burrell, Publicity.

Miss Burrell resigned in December and was replaced by Catherine Wallace.

Catherine Worthingham, Convention.

Susan G. Roen, Reporter for the Executive Committee to the Physiotherapy Review.

ADVISORY COMMITTEE

Chairman—Dr. Chas. LeRoy Lowman, Chief of Staff, Orthopedic Hospital, Los Angeles, Calif.

Dr. John S. Coulter, Former Chairman of Committee, re-appointed Assistant Professor of Physical Therapy, Northwestern University.

Dr. Wm. M. Happ, Pediatrician, Staff, Children's Hospital, Los Angeles.

Dr. Fred Clark, Internist, Past President of Southern California Medical Association, Long Beach. Member House of Delegates of A. M. A.

Dr. Paul S. McKibben, Dean of Medical School, University of Southern California.

OFFICE SECRETARY

One of the first things for our consideration was the employment of an office secretary to begin the work of cross-filing and condensing the records of the Association. The first one employed did not prove satisfactory and a change was made the first of the year. We are glad to report that the cross-filing has been completed and the task of condensing is now under way.

APPOINTMENT BUREAU

The Appointment Bureau Service formerly taken care of by a special chairman is now being handled through the secretary's office, and the dollar fee charged for this service has been discontinued.

We are requesting chapter secretaries to include the name of their employment chairman in their chapter questionnaire in the space provided for "Other chairmen" so that the National secretary may get in direct communication with local chairmen.

The listings of the Appointment Bureau are kept in a cardex system. On one side of the file are listed names of members wishing employment. On the other side are listed names of doctors or institutions who have applied to us for physical therapists.

When the files reach our office it was found that many of the names had been on the list for months. In order to avoid waste of time in referring openings to members who were no longer interested in a position, a revised questionnaire was sent to each applicant, requesting them to fill it out and return it if they were still interested in a position. Those not heard from were removed from the active list.

To all prospective employers we sent a letter saying that in order to complete our files we would appreciate a statement from them as to whether or not any of the physical therapists referred to them had been accepted, and if not we would appreciate the opportunity of being of further service to them; that we were anxious to serve them as well as our members. Some replies were received, most of them stating that the position had been filled locally.

During the past year including the re-applicants:

12 Requests have been made for physical therapists.

40 Members have been referred to these prospective positions.

16 Physical therapists have applied for positions.

2 Physical therapists have reported positions obtained through the bureau.

Some physical therapists have reported positions found through another source. Some positions have been filled locally after request has been made to our office.

At this time, I wish to impress upon the members who use the service of this bureau that their cooperation in reporting the results of their contacts would greatly simplify the work of our office. It is always a particular pleasure to refer openings to those members who do give us this cooperation.

Some of the most difficult phases of the service are to find physical therapists who fit the requirements of the employer and positions in the section of the country satisfactory to the physical therapist. The prospective employer seldom states the salary paid when offering a position.

To give you an idea of the difficult problems of the service, I want to tell you of one request. The superintendent of a county hospital in Kansas wrote us requesting someone with good training in both physical therapy and x-ray. She further stated that she wanted a nurse with pleasing personality, preferably from the middle west or west and that the applicant must be a protestant. The salary offered was $90 per month and full maintenance with three weeks' vacation after the first year. If you think that is not a large order, try and fill it. We had one member on our list who seemed to qualify in all respects except that of residence. We have not heard whether or not the connection was made.

We will appreciate a discussion as to how we can increase the usefulness of this bureau to our members.

CHAPTER LETTER AND QUESTIONNAIRE

Following the first regular meeting of the Executive

Committee in November, a chapter letter was sent out. As a possible method of better acquainting the members-at-large with the national organization affairs, as had previously been suggested by various members, the Committee decided to send copies of the chapter letter to any member-at-large upon request to the secretary. Notice of this was put in the REVIEW. One request was received.

With this chapter letter was sent a chapter questionnaire. The object of this is to bring annually to our files on a regulation form, accurate and up-to-date information as to chapter officers, committee chairmen and other requested information of value to our office. Chapters have had no uniformity as to dates of annual election. Some chapters have been having a change of officers every year. Others elect every two years. The second issue of this form sent out around the first of May was for the record of changes in officers or chairmen so that our files may be kept up-to-date. From these forms we compile lists of chairmen and send them to our national chairmen which enables them to write directly to chapter chairmen. This is an economy of effort and time. Two chapters did not return the questionnaire this past year. We hope for 100 per cent cooperation this year.

NATIONAL CONSTITUTION AND BY-LAWS

The revised Constitution and By-Laws as adopted at the 1934 convention was printed and a copy sent to all members-at-large and an adequate supply to all chapters.

To Florence Phenix was delegated the task of preparing a model constitution and by-laws for the use of chapters in revising theirs to conform to that of National. The Executive Committee urges that all chapters do this at their earliest convenience.

PERSONAL QUESTIONNAIRE

To Constance Greene was delegated the work of compiling the much discussed personal questionnaire, the object of which was to bring to the national files, information as to the background, professional training and experience of all of our members. This information on the larger per cent of our members has not been available in the national files as most of them have joined through chapters, and until recently, chapters were not required to send a copy of the application of new members to the national office. The object of this personal questionnaire seems to have been misunderstood by some of our members who quite evidently feel that it is being used as a check up on their physical therapy training.

Such is not its object. It is felt by the Executive Committee that this information will be of value to the national executive committee and its chairmen in selecting material for prospective officers and committee chairmen; in choosing members to conduct examination, contribute to programs; also for statistical purposes.

CODE OF ETHICS

To Marie Fackt was delegated the task of compiling a proposed code of ethics to govern members of our organization, to be presented for approval at this convention.

MEMBERSHIP

The Executive Committee feels that with the radical increase in dues, the membership has been well sustained. The membership as of May first is as follows:

Seniors	626	Members-at-Large	167
Juniors	57	Chapter members	516
	683		683

A full report on the membership will be given by our vice-president, Lucile Grunewald, who has served as membership chairman.

DUES

Objections were raised by some chapters at collecting additional dues from those members who had paid their 1934-35 dues before the 1934 Convention at the old rate of $5.00 for national dues.

All Chapters had received a chapter letter from the National Executive Committee in February, 1934, in which chapter treasurers were instructed to accept 1934-35 dues at the old rate of $5.00 *SUBJECT* to a change which might take place in the revision of the Constitution and By-Laws at the 1934 convention. This is just another instance of chapters not reading communications sent them.

Subscription Price of REVIEW—It was decided to continue the subscription price of THE PHYSIOTHERAPY REVIEW to non-members at $2.50 per year.

EXAMINATIONS

At the regular Executive Meeting in November the question of examinations was thoroughly discussed. February was decided as the best month, after this year, for holding an annual examination to admit irregularly trained applicants for membership. Due to the change in officers this year and the delayed start on the project, Miss Elson was instructed to give the examinations in March. Notice was put in the November-December REVIEW to submit applications for examination by February first. Twelve persons were recommended for membership by examination. Only six applied and paid the fee. A full report on this project will later be heard by Mildred Elson, education chairman.

CONVENTION

Atlantic City was chosen as the place of the Fourteenth Annual Convention. The offer of the Pennsylvania Chapter to act as hostess chapter in Atlantic City was accepted. Post Convention trips have been planned to New York, Washington and Philadelphia on June 14th. New York, District of Columbia, and Pennsylvania Chapters will be hostesses in their respective cities.

Catherine Worthingham as General Chairman has arranged a most worth-while program to be conducted on the panel plan. Our Association has been granted a booth in the American Medical Association Scientific Exhibit. To Miss Worthingham is due credit for the entire exhibit which is entitled "Modern Technics in the Exercise Treatment of Faulty Posture." From her you have heard the convention report.

In past administrations it has been customary to waive the payment of dues of the national officers upon whom fell the heavy administrative duties of the organization. This executive committee felt that with a paid secretary to lighten our duties considerably, we should pay our dues the same as any member. And realizing the heavy convention expense which would be necessary to transport officers from the West Coast to the East Coast, no bills for executive committee expenses have been presented by the four Southern California officers. Our Northern California vice-president has rendered a gasoline bill for her 900-mile round trip only twice out of the four trips made south during the year on national executive business.

The only executive expense incurred this year was the bringing of Past President Margaret Campbell to the coast for the regular executive committee meeting in November. Our Constitution requires a quorum meeting twice a year, one to be held at Convention time. For this regular meeting, one director was necessary to complete the quorum. Although Marie Fackt was nearer

the coast, it was felt that Margaret Campbell with her past experience would be of more value to the new officers.

The executive officers and committee are deeply appreciative of the splendid cooperation of those members of the committee who took the responsibility and work of the special projects of the committee.

We are also most appreciative of the splendid cooperation of most of the chapters in assisting us in the work of this year. We do urge that some of the chapters and members read more thoroughly the communications sent them as it is discouraging to spend time and effort in sending out communications and having no response from them.

We invite your constructive criticisms and suggestions, for this is your organization.

Respectfully submitted,

Jefferson Brown, *Secretary.*

Report of the Editor

During the year May first, 1934 to May first, 1935, six issues of The Physiotherapy Review were published. The issues went into the mails between the fifteenth and twentieth of May, July, September, November, 1934, and January, March, 1935. The following chapters contributed articles to different issues:

Massachusetts, Western New York....May-June, 1934
Northern and Southern California .....
..... September-October, 1934
Pennsylvania, Wisconsin ....November-December, 1934
Cleveland, Washington State....January-February, 1935
Chicago, Michigan, Minnesota.....March-April, 1935

(The Texas chapter which was to contribute to the January-February issue, sent material for the July-August, 1935, instead, and Central New York, our new chapter, will also contribute to the July-August.) Many of the articles published came directly to the office of the editor from the contributors.

Of the fifty-eight articles published during the year, thirty-seven were by doctors, eleven by members, and ten by outsiders. Dr. Coulter has generously contributed the abstracts as he has done in the past. Fifteen of the articles were illustrated. Six were reprints from other journals. The cost of the illustrations was paid either by the contributor, or by the chapter through which the article was contributed.

The three associate editors have assisted in gathering the material from the chapters, and have read the copy and passed judgment upon it before sending it to the editor. The assistant editor has helped with the reading of the galley proofs and with the making up of the dummies. The editor has edited all copy going into the Review, has read proofs and made up dummies, has arranged with the engravers for all cuts, has arranged for reprints, and has returned cuts and reprints to the proper persons. Because the business manager is at some distance from the place of publication, it has been necessary for the editor to make final arrangements about advertising, and to make zoning reports for the post office.

In the resignation of Martha Hindman, business manager, the Review and the Association are confronted by a problem which must be discussed at this convention in the hope of reaching some solution. Miss Hindman and Miss Foss carried the business most successfully for over a year, but since Miss Foss's departure from St. Paul, Miss Hindman finds it impossible to carry on alone.

And, truly, the job is too big for one person to carry alone along with one's regular duties. As a matter of fact, the Review could well occupy the full time and attention of one person acting as editor and business manager. What is to be done about it? The journal is the Association's major issue. It is the Association's spokesman. It should have more careful attention than can be given by people who must make a living on the side, and who are harassed by other duties as well.

There is, too, the problem of changing the offices of the journal—of the changing of addresses of editors and business managers. Such changing is poor business, and it is most inconvenient. There should be a central and permanent office which would remain intact from year to year even while the officers might change from time to time.

How is this to be done? This is the question to be discussed at this time. The business manager's report will show that the Review has not used nearly all of the money allotted to it by the constitution. Perhaps this fact may offer one solution. But, again, even if sufficient funds might be available, where will the Association find the properly equipped person to shoulder the Review and carry it on?

In closing, I want to thank my co-workers most sincerely for their help and cooperation, and I want the chapters to know that I appreciate their efforts in getting material and in sending it on in such good time. I regret, more than I can express, Miss Hindman's resignation, for not only do I lose excellent support, but the Review will lose a fine worker.

Respectfully submitted,

Ida May Hazenhyer.

Report of the Business Manager

The records of this office show an increase in subscriptions, as the Review is steadily finding its way into more Medical Libraries, Universities, Colleges, Hospitals, Visiting Nurse Associations, and into the hands of individuals, who are interested in physical therapy.

Miss Foss and I have enjoyed the work on the Review staff this past year. If there is anything that makes one nationally minded, I might say internationally minded, with our foreign subscribers and exchange foreign journals, it is to handle the magazine business. It is with regret that I feel it necessary to resign, but the work is too much to be done in one's spare time. I am sure that the plan, for the business management of the magazine in the future, which is to be discussed, and I hope adopted, will be a much more efficient working system.

The past year we have had calls for complete volumes of the Review, covering the past four or five years. It is sometimes difficult to fill these orders for back issues, therefore, any one not wishing to keep their old copies, would do a great favor to the business office, by sending in a list of numbers which you have and are willing to part with, so that we will know where certain numbers can be obtained when a request comes in.

Report as follows:

Advertisements run	57
Subscriptions entered	176
Extra copies sold to non-members	79
Extra copies sold to members	11
Sample copies sent out	39
Copies of Reprints from articles in the Review	9,500
Physical Therapy, Coulter	3
Exchange Journals on list	18
Complimentary copies each issue	26

I wish to express my thanks to the Editor, Executive Committee, Chapters and members for their splendid cooperation during the past year.

Respectfully submitted,

Martha Hindman.

Report of Treasurer

American Physiotherapy Association,
Los Angeles, California.

We have audited the accounts of the treasurer of the American Physiotherapy Association for the year May 1, 1934 to April 30, 1935, and have prepared therefrom and from the Revolving Fund Cash Book of the Physiotherapy Review the following attached exhibits:

Exhibit I Statement of cash receipts and disbursements May 1, 1934, to April 30, 1935.

Exhibit II Physiotherapy Review — Revolving Fund May 1, 1934, to April 30, 1935.

Exhibit III Reconciliation of bank balance at April 30, 1935.

During the year the books and records were transferred from Ann Arbor, Michigan, to Los Angeles, California. The current account with the Ann Arbor Savings Bank was closed out and the balance was deposited in the Security-First National Bank of Los Angeles. The balance in savings account No. 6261 with the Ann Arbor Savings Bank was transferred to savings account No. 11746 with the Security-First National Bank of Los Angeles.

We traced all recorded receipts into the bank account. We have examined cancelled checks together with proper authorization for all disbursements. We have checked the footings of the cash book and verified the bank balance. We are of the opinion that the following exhibits fairly and correctly reflect the financial transactions for the period stated.

Yours very truly,
JOHN A. SIMMERS & COMPANY.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
MAY 1, 1934 TO APRIL 30, 1935

RECEIPTS

Membership dues:		
Senior	$5,159.50	
Junior	243.50	
Associate	57.00	$5,460.00
Physiotherapy Review:		
Subscriptions	$ 457.30	
Sale of extra copies	41.46	
Illustrations and reprints	290.11	
Advertising	315.43	
Sale of Coulter's Book	1.50	1,105.80
Convention registration		81.00
Appointment bureau fees		10.00
Examination fees		130.00
Sale of pins and emblems		69.00
Interest		60.46
Total		$6,916.26

DISBURSEMENTS

Auditing		$ 31.08
Business secretary's salary		1,037.15
Check tax and exchange fees		4.35
Committees' expenses:		
Educational	$ 55.29	
Executive	142.76	
Membership	6.00	
Nominating	6.06	
Publicity	7.19	217.30
Convention expense:		
Program	$ 18.00	
Report on proceedings	232.23	
Traveling and miscellaneous	423.78	674.01
Legal fee		10.00
New office equipment		67.77
Physiotherapy Review:		
Advances to revolving fund—exhibit II	$ 67.76	
Coulter's Book	3.39	
Editor's expense	50.00	
Postage	17.85	
Printing	1,780.59	1,919.59
Pins and emblems		64.79
Postage		97.84
Printing, stationery and miscellaneous		265.47
Refunds:		
Appointment bureau fee	$ 1.00	
Dues	9.00	
Subscription	2.50	12.50
Shipping and express		57.35
Special traveling expenses		203.16
		$4,662.36
Excess of receipts over disbursements		2,253.90
		$6,916.26

PHYSIOTHERAPY REVIEW—REVOLVING FUND
MAY 1, 1934 TO APRIL 30, 1935

Balance—deficit—at May 1, 1934		$ 8.29
Add:		
Received from National Treasurer:		
Advance in transit May 1, 1934	$25.00	
Advances during year to April 30, 1935—per exhibit I	67.76	92.76
		$84.47
Deduct:		
Disbursements:		
Postage	$55.31	
Printing and stationery	23.07	
Stenographer	15.00	
Telegrams	1.42	94.80
Balance—deficit at April 30, 1935		$10.33

SYNOPSIS OF COLLECTIONS FOR PHYSIOTHERAPY REVIEW

Collected by business manager and remitted to national treasurer	$1,104.99
Add: Remittance in transit April 30, 1934	5.00
	$1,109.99
Deduct: Remittance in transit April 30, 1935	25.50
	$1,084.49
Received by national treasurer direct	21.31
See exhibit I	$1,105.80

RECONCILIATION OF BANK BALANCE
APRIL 30, 1935

Commercial account—Security-First National Bank of Los Angeles.		
Balance per bank statement, April 30, 1935		$3,552.99
Deduct: Checks outstanding:		
Number 201	Amount $25.50	
202	14.40	
203	30.20	
204	50.00	120.10
Balance per books, April 30, 1935		$3,432.89
Savings account:		
Balance in Ann Arbor Savings Bank—May 1, 1934	$2,576.58	
Add—interest	31.14	
Balance transferred to Security-First National Bank of Los Angeles—July 30, 1934	$2,607.72	
Add—interest to December 31, 1934	29.32	
Balance April 30, 1935		2,637.04
Total balance at April 30, 1935		$6,069.93

RECONCILIATION

Balance May 1, 1934	$3,816.03	
Add:		
Excess of receipts over disbursements—exhibit I	2,253.90	$6,069.93

Respectfully submitted,
SUSAN G. ROEN, *Treasurer.*

Report of the Committee on Education

During the past year the American Medical Association has been conducting a survey of schools and courses of physical therapy. A preliminary report appeared in the Journal of the American Medical Association of March 30, 1935:

"Schools for Physical Therapy Technicians.—The Council on Physicial Therapy and the Council on Medical Education and Hospitals of the American Medical Association have been lending their cooperation to the Congress on Physical Therapy in the formulation of proper standards for the Registry of Physical Therapy Technicians.

"The Board of Trustees of the American Medical Association in 1934 was directed to effect, if feasible, some plan for rating schools for physical therapy technicians. The Trustees passed the matter on to the Council on Medical Education and Hospitals.

"The Council has inspected thirty out of the forty-three existing schools. On the completion of this survey, the Council, together with the representatives of the American Physiotherapy Association, the Congress of Physical Therapy and the Council on Physical Therapy will formulate proper educational requirements and essentials for approved schools of physical therapy. When these essentials are approved by the House of Delegates of the American Medical Association, a list of approved schools for technicans will be prepared."

As soon as the above is done, a complete report will be printed in the Review.

We have continued to have many requests for information concerning school curricula during the past year. Therefore we felt that it was necessary for us to have up-to-date information, concerning the schools whose graduates we have been accepting as members. All the schools except three responded and gave us assurance of their continued cooperation.

A course for Catholic Sisters was started at St. Louis University School of Medicine, the first of its kind to be organized.

A new examination for members was compiled. Unfortunately it was not given during the fiscal year. A full report of the results will be made June, 1936.

At a sectional meeting of the Chicago and Wisconsin Chapters during the Tri-State Hospital Assembly, the subject, Education for Hospital Physical Therapy Technicians was presented by Dr. J. Coulter, who very kindly filled in for Dr. R. Buerki, who was unable to be there. The problem of the small hospital was discussed; should the technician have training in other subjects, such as, x-ray or laboratory, or should the technician have less training in order to meet the salary which a small hospital could offer, were some of the questions asked us. It made those of us who were there realize the many problems which confront us, which we must help solve. We must find some way of making well trained physical therapy technicians available to the small hospital, at the same time suggesting ways and means of making the department self-maintaining in order that the technician may receive adequate salary. A general discussion followed at the dinner meeting and it is hoped that some of that discussion will appear in the Review this Fall.

Chapter Reports

The following chapters reported that they had had no definite educational program: District of Columbia, Wisconsin, Oregon and New York.

Massachusetts: A course of three lectures was given, one at each of their regular monthly meetings during February, March and April, by Dr. William Green. 1. Psuedo Hypertrophic Dystrophy. 2. Arthritis. 3. Child Development. At the first there was an attendance of 55, at the second 51, and at the third 45. A fine attendance and interesting subjects!

Chicago: The members of the Chicago Chapter are fortunate in having Northwestern University in their midst. They are to be congratulated, however, in taking every advantage of it. A series of lectures in human anatomy was given. It consisted of two-hour periods of lecture and demonstration on a presected cadaver once weekly for a period of eight weeks. The number in the group was limited to eight members and a fee of $8.00 was paid by each student. The physiology series consisted of one hour lecture for a period of eight weeks and the fee was $10.00. Two groups made a total of sixteen members in the anatomy and twelve in the physiology.

Cleveland: The Cleveland Chapter slogan for the year might have been "Know Your Own City," the chairman, Mrs. Cleveland, reports. Their first activity was a booth at the Community Fund Exposition which was held for a week in October. There was a fully equipped physical therapy department and the members took turns in demonstrating the uses of the various modalities. At the regular meetings the following subjects were discussed: 1. Orthepedics in the public schools, particularly how it integrated with the work of other organizations. 2. Occupational therapy as done by the Cleveland Association for the Disabled. 3. Passive vascular exercise which has been recently developed. 4. A tour of the new Federal Building and inspection of the new physical therapy department of the Veteran's Bureau. It was truly a "Know Your City" program. The chapter also gave a subscription to the Review to three teaching hospitals, City, Mt. Sinai, and The University Hospitals; which is a splendid thing and one which we hope other chapters will follow.

Washington: The Washington Chapter has purchased Principles and Practice of Physical Therapy in three volumes for circulation among its members. At the Pre-School Parent Teachers State meeting, one of the members, Miss Rice, gave a talk on the treatment of the Handicapped Child. It was a timely discussion for at the time there were a number of cases of poliomeyelitis.

Minnesota: The educational program has been limited to lectures and demonstrations given by physicians, details of which are included in the annual report of the chapter. One program consisted of reviews and comments on recent books relating to physical therapy by members of the chapter.

After each meeting there was group discussion of cases, which is a fine thing. Too often our meetings end with a lecture and with no time for discussion of problems. Such discussions can be a very definite part of the educational program. The chairman can lead it or appoint someone each time to do it.

It is the wish of the chairman that all the chapters have some definite educational program this coming year. If the group is small, and there is no medical school available or money to pay lecturers, group study could be arranged, book reports, new articles, etc., could be presented. There are many possibilities and I sincerely hope that we will have definite program reports.

Respectfully submitted,

Mildred Elson, *Chairman.*

Report of the National Legislative Committee

During the past year two letters were sent to the Legislative Chairman of every chapter for reports on state legislation relating to physical therapy. The first letter requested information as follows:

(a) Any Legislative work done by the Chapter to date.

(b) Any proposed Legislative program.

(c) Any Legislation—State, County or City, regarding physical therapy.

(d) Are you in touch with your State Medical Board of Examiners to follow up state legislation? If not get in touch with them. Tell them about the American Physiotherapy Association and offer our cooperation in bills that may come up affecting physical therapy.

Various Chairmen were reminded of the duties of the Legislative Committee as outlined in the Constitution.

The second letter was a follow-up letter for a final report of the eighteen chapters of the Association. Reports have been received from the following Chapters:

Washington	New York City
Oregon	Southern California
Northern California	Ohio
Chicago	Wisconsin
Washington, D. C.	Minnesota
Michigan	Western, N. Y.
Massachusetts	Pennsylvania.
Texas	

No report received from:
Rhode Island New Jersey Central New York

The Chapter reports are as follows:

Pennsylvania Chapter: At the request of Mrs. Winifred T. Williard of Malden, Massachusetts, mailed Bulletin No. 19 entitled "Rules and Information" as an aid to the Massachusetts Physiotherapy Association which is trying to get physical therapy legislation in that state.

Secured copies of bills now pending in the legislature from the Chief Clerk of the House of Representatives. Of these only one No. 1759 was of interest to us.

At the May meeting of the Pennsylvania Physiotherapy Association this Bill (No. 1759) was read, discussed and found to be detrimental to our Association. On motion it was resolved by the Board of Directors, that a copy of this resolution be sent to the Medical Society and the State Board of Medical Education.

Each member was urged to take immediate action in upholding this resolution by getting in touch with the state legislator or senator stating individually their opposition to the House Bill No. 1759.

Under date of May 15th, a communication from the Chairman of the Legislative Committee of the American Physiotherapy Association was received requesting a final report on the activities of the Pennsylvania Physiotherapy Association and in compliance thereto sent her a copy of this report.

Washington: This Chapter feels that we would gain and maintain more influence and just as much, if not more, respect by working quietly and maintaining a high standard of work than by forcing ourselves into recognition by legislation.

We are therefore doing nothing about active movement toward legislation.

New York: Again there has been no legislative action taken by our chapter during the year 1934-1935. As in previous years, the medical profession has advised against legislative action by our organization. There are already state laws governing physical therapy in the state. In the new "Medical Abuse Bill" passed on March 28, 1935, there was reference made to physical therapy as authorized by the act, to quote:

"13-B-(c) Under the active and personal supervision of an authorized physician, medical care may be rendered by a registered nurse, physical therapist, or other persons trained in laboratory or diagnostic qualifications. This supervision shall be evidenced by signed records of instructions for treatment and signed records of the patient's condition and progress. Reports of such treatment and supervision shall be made by such physician to the commissioner on such forms and at such time as the commissioner may require."

We maintain a close contact with the State Committee of Physical Therapy (N. Y. State Medical Association) which has legal council and which informs us of proposed and enacted legislation.

Chicago: During the year two bills which might be inimical to physical therapy were introduced into the legislature at Springfield. Being closely associated with the Illinois State Medical Society and the Chicago Medical Association, we referred the bills to them. The first bill did not come out of Committee. The second one was introduced this week, therefore we will not have time to wait for its disposition before sending in this report. This bill is to license chiropodists and if passed would curtail physical therapy on feet unless the technician were a graduate of a school of chiropody. We feel very fortunate to have the two strong medical associations cooperating with us to protect our interests.

Nothing further in the legislative field has arisen.

Northern California: No physical therapy legislation pending before either Senate or Assembly during present session. Board of Medical Examiners States. "We hope some three or four pending amendments will be passed and later signed by the Governor."

Southern California, Washington, D. C., Minnesota, Michigan, Wisconsin, Cleveland: These states report as follows: No legislation proposed or passed this year. Committee in touch with State Board of Medical Examiners.

Western New York: No proposed legislation. In touch with the Medical Board of Examiners at Albany. For most recent legislation see New York City.

Texas: Secretary reports no legislative program because chapter is very small.

Massachusetts: Have requested copy of laws concerning physical therapy from other states, and studying these laws to make one for their own needs.

Oregon: No legislative activities 1934-1935.

According to the constitution the duty of the legislative committee is to keep records and printed copies of the bills of each state and the United States which regulate the practise of physical therapy. The Committee started to send for these bills and copies of the Medical Practise Act of all states but as the states do not send out printed matter free and each copy costs from thirty-five cents upward it was decided that it was too expensive to follow this investigation.

Respectfully submitted,
HAZEL E. FURSCOTT, *Chairman.*

Report of the Membership Committee

As chairman of the Membership Committee, I wish to present my report for the year 1934-35. As figures often tell the story better than words, I shall give my findings in tabular form:

Applicants accepted by the Executive Committee...	57
Applicants completing membership by payment of dues	29

Applicants not becoming members upon failure to pay dues	28
Applicants eligible for examination	12
Applicants applying for examination and paying examination fee (Results of examination not yet received)	6
Applicants rejected—Chapter (1)—Executive Committee (3)	4
Number of members accepted by Executive Committee	29
Number of members accepted by chapters	25
Total	54
New junior members	27
New senior members	27
Total	54
Junior members granted extension of time	4
Junior members accepted as seniors	6
Former members reinstated on payment of back dues	32
Total number of junior members in the Association	57
Total number of senior members in the Association	626
Total membership	683
Total membership last year	707

In this year which was only ten months long, July 1, 1934, to April 30, 1935, and in which the increase in dues was from $5 to $8, the total membership was only 3.3% less than last year.

Now may I interpret and read into the above findings. How can we account for the fact that about fifty per cent of the applicants failed to become members. They showed enough interest in wanting to join the Association to secure an application blank, to fill it out completely, and to collect all the necessary credentials. One answer may be that on the application blank there is no statement of the amount of dues, and with the marked increase this year, it was a rather forbidding amount when applicants were not informed of it until after all the other negotiations were completed.

Another factor that may have caused the change of mind was the change in the fiscal year. The applicant probably did not realize this change and when she was accepted just discovered that she had to pay a full year's dues with one, two, or three-fourths of the year over. I should like to recommend that the membership chairman or chapter secretary make it known to the applicant when she receives the application form, the cost of dues and time of the fiscal year. Might it be feasible to have the person pay her dues when she applies, and if not accepted have the dues returned? Would it be possible to pro-rate the dues for a new member not accepted until after the second or third quarter of the year? I think we shall always have this problem of receiving new members several months after the beginning of the new year. There are no chapter meetings or chapter executive committee meetings from May or June to September or October.

At the beginning of a new administration of officers, I realize there is always some slowing up in the machinery. Last summer it took me some time to learn what my job was and how to do it. I know there was some delay in several instances due to my lack of comprehension. Another delay which in some cases was quite serious was the failure on the part of the references to reply for weeks or even months after request for recommendation. We cannot accept new members without a favorable statement from a physician by whom applicant has been employed and from a member of the Association. May I ask the members when a recommendation is requested of them, to give us a more detailed and comprehensive report. When doubtful or irregular cases are referred to the Executive Committee by the chapters, all the information that can be gathered by the chapter is solicited by the Committee so it can act upon the candidate with more intelligence and wisdom.

Considering the increase in dues in this period of economic stress, the short year due to change in the fiscal year, and the change of administration, the Association has been fortunate to have such a low drop in total membership as 3.3 per cent. Next year realizing some of our problems, we should succeed at least in having all accepted candidates become members and not 50 per cent failing to complete negotiations by paying their dues.

As membership chairman, I wish to thank Miss Swezey our past chairman for helping me to carry on her good work. I also extend my appreciation to the chapter membership chairmen for their splendid cooperation. If we are always careful in our selection of new members, every member shall forever be proud to belong to the American Physiotherapy Association.

Respectfully submitted,
LUCILE GRUNEWALD, *Chairman.*

Committee on Publicity

I feel that I have accomplished very little since January of this year, when I was asked to act as Chairman of Publicity.

We have endeavored to add to the list of professional motion pictures already started, and now have a list of about twenty films that can be borrowed or rented by the members of the Association.

Letters have been sent to thirty persons or institutions, suggesting that they subscribe to the REVIEW; and to twelve of these, copies of the REVIEW have been sent.

A list of material found useful by the members of the Association has been compiled, and added to the bibliography for the exhibit.

Respectfully submitted,
CATHERINE WALLACE, *Chairman.*

Chapter Reports

Central New York Chapter

1. Number of active members: Senior, 5; new members, none; junior, none; member dropped, 2.

2. Number of meetings held during the year, 6.

3. Lectures and speakers heard during the year:

Dr. Lowry—Athletic Injuries.

Dr. Wolfrom—Methods in Hyperpyrexator Treatments.

Dr. Severance—Evolution of Posture.

Dr. Parr—Injuries and Treatment of the Ankle and Foot.

Dr. Ayers—Spinal Cord and its Degenerations.

Dr. Martin—Speech Gymnastics.

Respectfully submitted,
DOROTHY L. LEWIS, *President.*

Chicago Chapter

1. Number of active members: Senior, 68; Junior, 6; new members, 2 reinstated, 10 senior, 4 junior; members dropped, 3 transfers, 1 dropped, 1 death.

2. Number of meetings held during the year—5.

3. Lectures and speakers heard during the year:

Dr. Coulter, Dr. Mortimer and Mr. H. A. Carter—New Developments in Physical Therapy.

Dr. Douglas Campbell—Posture: A Gesture Toward Life.

Dr. Geza de Takats—Peripheral Vascular Diseases.

4. General Report:

The Chicago Chapter has completed a year marked with some accomplishments and disappointments.

A tea was held in March at the Chicago Art Institute. This was saddened by the loss of one of our charter members—Miss Jennie Strand. Miss Strand was taken from a very fine and active life without any warning, and the Chicago Visiting Nurse Association as well as our chapter feels her loss very deeply.

In May, the Wisconsin and Chicago Chapters combined to provide an exhibit for the Tri-State Hospital Association. The theme of the exhibit was "How to Start a Physical Therapy Department on $100.00." This exhibit was well accepted and likewise the program provided for one of the afternoon round table discussion groups. Following the meeting, thirty of the Chicago and Wisconsin members had a "get-together" dinner with discussion of various phases of physical therapy.

The Chicago Chapter chose for its major activity this year, a drive for membership. Under the leadership of our incoming president, the city and suburbs were combed for physical therapists eligible for membership—not only those meeting the requirements of the constitution, but also those coming in upon examination. These were obtained.

Respectfully submitted,
MARGARET WALLACE, *President.*

Cleveland Chapter

1. Number of active members: Senior, 26; junior, 3; new member, 6; members dropped, 1.

2. Number of meetings held during year—7.

3. Lectures and speakers:

Miss Henrietta McNairy—Occupational Therapy.

Mrs. Harriet T. Hall—Physiotherapy in the Cleveland Schools.

Dr. Ernest Bright—The Treatment of Peripheral Vascular Diseases with Positive and Negative Pressure.

Col. Marlin, Dr. Dager and Dr. Timberlake—Veterans Administration.

4. General Report:

The public's interest in hospital work was aroused last November when the Community Chest gave an exhibit of the work of all the agencies participating in the Cleveland Community Chest funds. Our Chapter had charge of the physical therapy booth which was part of the hospital exhibit. Members of the chapter assisted each day, explaining various types of physical therapy equipment to the thousands of people who attended the exhibit.

One year subscriptions to the PHYSIOTHERAPY REVIEW were given three of the teaching hospitals of Cleveland to be placed in their internes' libraries as a means of giving medical students and doctors an opportunity to keep informed of our work.

The Chapter voted to have a registration bureau for accredited physical therapists, but this is pending the formation of the Ohio Chapter.

At the October meeting, the Cleveland Chapter voted unanimously to reorganize into a state chapter. It has given much time and thought in an effort to stimulate greater interest in physiotherapy workers throughout the state, even though the great distances between cities has made it seem advisable to subdivide the chapter into districts for local meetings.

After many hours of work by the local Executive Committee, a tentative constitution for a state chapter has been drawn up, and has now been submitted to the National Executive Committee. We are anxiously awaiting its approval before starting re-organization.

Respectfully submitted,
EMMY KYLIN, *President.*

District of Columbia Chapter

1. Number of active members: Senior, 15; Junior, 3; new members, senior 2, junior, 3; members dropped, 2.

2. Number of meetings held during year—8.

3. Lectures and speakers heard during the year.

November—Dr. Penhallow—History of Physiotherapy.

December—Dr. Eldridge—Medical-Legal Phases of Physiotherapy.

February—Capt. Langmack—Physical Education Problems in the Washington Public Schools.

March—Dr. Hall—Treatment of Fractures of the Femur.

April—Mr. LeFevre—Recent Developments in Physical Therapy Modalities.

May—Mrs. Caroline Brown, New Haven Hospital—Treatment of Spastic Paralysis.

4. General report, none.

Respectfully submitted,
EMMA E. VOGEL, *Secretary.*

Massachusetts Chapter

1. Number of active members: Senior, 47; junior, 6; new members, 6; members dropped, 21.

2. Number of meetings held during the year—8.

3. Lectures and speakers heard during the year:

Dr. Kuhn and Dr. Swain—Arthritis.

Dr. Seth Fitchet—Flexion Deformity of the Hip.

Dr. W. B. MacAusland—The Place of Physical Therapy in Orthopedics.

Dr. W. T. Green—Pseudo—Hypertrophic Muscular Dystrophy.

Dr. W. T. Green—Arthritis in Children.

Dr. W. T. Green—Child Development.

4. General report:

The lectures by Dr. Green were given after the regular business meetings, and paid for with the chapter funds.

A committee has been working with a committee of doctors from the N. E. Physical Therapy Society on the subject of legislation in this state to standardize requirements of the physical therapists and to set up a state registry.

Respectfully submitted,
DOROTHY FREDRICKSON, *President.*

Michigan Chapter

1. Number of active members: Senior, 42; junior, 1; new members, 7; members dropped, 1.

2. Number of meetings held during year—4.

3. Lectures and speakers heard during year: Dr. F. C. Kidner, Dr. F. E. Curtis, Dr. C. W. Peabody and Dr. Brokenshire.

4. General report:

A course of eight lectures in anatomy was given to members of the chapter by Dr. Watson Beach, Professor of Anatomy, Wayne University.

Eighteen members enrolled and the course proved interesting and helpful.

Respectfully submitted,
RUTH HALLETT, *Secretary.*

Pennsylvania Chapter

1. Number of active members: Senior, 61; new members, 5; members dropped, 3.

2. Number of meetings held during year:

Regular monthly business meetings, 8; board of directors, 11; special, 1.

3. Lectures and Speakers heard during the year:

Alice I. Clement—Muscle Training.

Francis Braceland, M. D.—Physiotherapy in Psychiatry.

Mr. Melvin Sutley—Hospital Insurance.

Arthur Hartley, M. D.—The Bony Skeleton.

XUM

Thomas W. Phillips, M. D.—Muscles (Two lectures).

Nicholas Gotten, M. D.—The Anatomy of the Nervous System.

Stanley Brown, M. D.—Physiotherapy in Fractures.

Earl Bond, M. D.—Three Sides of the Human Mind.

Oscar Batson, M. D.—Vascular System.

4. General Report:

In reviewing the work of the committee for the past year, there seems so little to report, yet things have been done and results will show, we are sure.

We have again been called upon to assist applicants for membership in establishing their qualifications for the State Board Examination. We were gratified to note the attention and cooperation afforded by the State Board of Medical Education and Licensure, to our communications.

We are subscribing to the REVIEW for Dr. J. D. Metzger, Pittsburgh chairman of the Pennsylvania State Board of Medical Education and Licensure; also for Dr. Clarence Bartlett, another member of the Board from Philadelphia. We think this is one of the best means of educating the profession toward our standards and ethics. We hope a similar plan will be carried out next season.

Our plans for the immediate future are more members in Pennsylvania; and an establishing of centers in the middle and western part of the state. We feel this would be of more value to all physical therapists in the state than the formation of new chapters.

Respectfully submitted,
LOUISE JETTER, *Secretary.*

New York Chapter

1. Number of active members, 47. (Three of these paid dues to New York Chapter and were later transferred to other chapters.) Senior, 46; Junior, 1; new members, 5; members dropped, 8; members resigned, 3; transferred from National, 1; rejected applicants, 3.

2. Number of meetings—8.

3. Lectures and speakers heard during year:

October, 1934—Dinner for Advisory Council—Drs. Bierman, Hansson, McGuinness, Brooks, Kovacs.

November, 1934—St Barnabas Hospital, Newark. Held in conjunction with New Jersey Chapter.

Speaker: Dr. J. H. Samuels—Myositis.

December, 1934—Orthopedic Hospital New York.

Dr. Madge C. L. McGuinness—Some Physical Measures in Pelvic Pathology.

Dr. Gerald Pratt—Principle of Suction Siphonage in Surgical Conditions.

January, 1935—Bridge Party.

February, 1935—Medical Department, Hotel New Yorker.

Dr. John D. Currence—Pathological Conditions in Arthritis.

March, 1935—Polyclinic Hospital.

Dr. F. H. Krusen—Some Recent Advances in Physical Therapy.

Dr. K. G. Hansson—Vital Capacity in Scoliosis.

Dr. Richard Kovacs—Low Frequency Currents in Treatment.

April, 1935—Orthopedic Hospital.

Dr. James S. Edlin—Tuberculosis and Some Roles Physical Therapy Plays in Its Management.

Dr. Marvin Stevens—Injuries in Athletics.

May, 1935—Hospital for Ruptured and Crippled.

Dr. Percy W. Roberts—The Human Foot.

4. General report:

For a number of years the New York and New Jersey Chapters have held joint meetings alternately in New York and New Jersey. Our Chapter felt that there was too much time and contact lost between the meetings in New York, as we were able to hold one only every other month. Very few of our members attended the meetings in New Jersey. At the November meeting which was held in New Jersey, it was voted to hold all monthly meetings in New York, extending an invitation to the New Jersey Chapter to attend.

Next year we plan to take the names of all those attending monthly meetings, or have a roll call. We will also extend personal invitations to those whom we think are eligible or interested in joining the Association.

Mimeographed copies of the model Constitution and By-Laws have been sent out to all members of our Chapter. We feel that most of them know too little about our constitution. This will give each one an opportunity to study it and voice an opinion.

Respectfully submitted,
HELEN REGAN, *President.*

Minnesota Chapter

1. Number of active members: Senior, 18; junior, 0; new members, 0; members dropped, 0.

2. Number of meetings held during the year—11.

3. Lectures and speakers heard during the year:

I. Various Types of Arthrodeses of the Ankle Joint by Dr. Vernon Hart, Minneapolis.

II. The Purpose of the Minnesota Crippled Children's Associations by Jean Pierce, Executive Secretary of Minnesota Crippled Children's Association, Minneapolis.

III. Diseases of the Peripheral Nerves by Dr. Gordon Kammon, St. Paul.

4. General report:

Book reports given by members:

I. Exercise and Its Physiology by Gould and Dye, given by Helen Foss.

II. Massage and Remedial Exercise by Noel Tidy, given by Sara Kollman.

III. Physical Treatment by Movement, Manipulation and Massage by J. B. Mennell, given by Marion Denny.

It was the intention of the Minnesota Chapter in 1934-35 to arrange a course of study for the Chapter which would be extended throughout the winter months. Due to the change in officers, the business of the organization did not get under way until the first meeting in the fall and by then no time could be arranged whereby all members could attend. The Program Committee, however, arranged an interesting program for the year. Three dinner meetings were held which were enjoyed by all the members. Plans for the coming winter are to be settled before the chapter adjourns for the summer. In adopting a constitution to conform with the Constitution and By-Laws of the American Physiotherapy Association, it was voted to make the out-going president and secretary directors of the executive Committee for a period of two years. In this way, they will be in a position to instruct and direct the newly elected officers on their various duties.

Respectfully submitted,
ELMA HARRISON, *President.*

Northern California Chapter

1. Number of active members: Senior, 27; junior, 2; new members, 2; members dropped, 4; delinquent members: 2 juniors.

2. Number of meetings held during year—9.

3. Lectures and speakers heard during the year:

Dr. Eric Ogden, six lectures on physiology.

Symposium—Dr. Carl Meyer.

XUM

General business meetings.

4. General report:

1. Moving pictures of polio treatment under water and others shown during the day in the physical therapy booth at the Convention of California Hospitals Association.

2. A course of six lectures, given by a member of the University of California Medical Staff, Physiology Department, open to outsiders on payment of a nominal fee.

3. Final meeting, symposium — Dr. Carl Meyer, principal speaker.

Respectfully submitted,
ETHEL D. JOHNSON, *Secretary.*

Rhode Island Chapter

1. Number of active members: Senior, 6; junior, 0; new members, 0; members dropped, 3.

2. Number of meetings held during the year—0.

3. Lectures and speakers heard during the year—0.

4. General report:

Our Chapter is not at all an active one. The members sometimes attend the meetings of the Chapter in Boston, Mass.

Respectfully submitted,
RUTH E. JOHNSON, *President.*

Southern California Chapter

1. Number of active members: Senior, 59; junior, 7; new members, 10; members dropped, 7.

2. Number of meetings held during the year—5.

3. Lectures and speakers heard during the year:

Miss Campbell—Work of the National Officers.

Dr. Meals—Treatment of Poliomyelitis.

Dr. Hyland—Pathology of Poliomyelitis.

Dr. H. D. Eaton—Physiotherapy in the Treatment of Nervous and Mental Disorders

Dr. V. P. Thompson—Body Mechanics.

4. General report:

Demonstration in posture followed by ten class meetings.

Respectfully submitted,
GRACE E. ARNOLD, *Secretary.*

Washington Chapter

1. Number of active members: Senior, 16; junior, 1; new members, 1; members dropped, 0.

2. Number of meetings held during the year—10.

3. Lectures and speakers heard during the year, 3:

Dr. Allison, Tacoma, Wash., subject—Poliomyelitis.

Dr. H. J. Wyckoff, Seattle, Wash., subject—Low Back Conditions.

Dr. Darrell Leavitt, Seattle, Wash., subject—Functional Treatment of Fractures.

4. General report:

1. A demonstration of the care and treatment of poliomyelitis cases was given by the physical therapy staff of the Children's Orthopedic Hospital. This included muscle training, use of the pool, braces and molds.

2. Our Constitution and By-Laws have been revised in accordance with the model copy received.

Respectfully submitted,
GUDRUN BRASK, *President.*

Western New York Chapter

1. Number of active members: Senior, 20; junior, 21; new members, 2, one transferred from members at large; members dropped, 0, one transferred to members at large.

2. Number of meetings held during the year—0.

3. Lectures and speakers heard during the year:

Regular meeting July 14, 1934. Held at The Barn, Le Roy, N. Y. An informal meeting at which the delegates and others gave the high points of the National Convention.

Regular meeting October 13, 1934. Held in Rochester, N. Y. Business meeting and dinner followed by a lecture which was given at Strong Memorial Hospital. Mr. Arthur Heath gave an illustrated lecture and talk on The History and Application of Gait Measurement.

Regular meeting January 12, 1935. Held in Buffalo, N. Y., at the Town Club. Business meeting followed by dinner and talk by Dr. L. Maxwell Lockie on Recent Advances in the Treatment of Arthritis.

Regular meetting April 13, 1935. Annual reports and election of officers. Held at the Seneca Hotel, Rochester, N. Y.

Miss Mary Nesbit, Rochester, General Hospital, vice-president and treasurer.

Miss Maude Stone, Miss Mary Fowler, two members-at-large.

After the dinner, Dr. Roy F. Herman gave a lecture on Mobilization of Joints.

Respectfully submitted,
LELIA ZERNOW, *Secretary.*

Wisconsin Chapter

1. Number of active members, 40. Senior, 33, junior, 7; new members, 5; members dropped, 1.

2. Number of meetings held during the year—4.

3. Lectures and speakers heard during the year:

Dr. W. H. Hefke, Milwaukee Hospital, spoke to us about the Ketering-Hypotherm apparatus.

Dr. H. W. Wirka, Wisconsin General Hospital, gave us an illustrated lecture on Congenital Dislocation of Hips.

Dr. W. P. Blount and Miss Mildred Elson, Milwaukee, showed us an excellent movie which they have recently completed on the Orthopedic Care of the Polio. Also, they showed us a very interesting reel they took of Warm Springs.

4. General report:

The Wisconsin Chapter was organized six years ago with five members. Today we boast of forty active members.

Our "Wisconsin Chapter News" serves as a transmitter of activities and news to members who find it impossible to attend all meetings.

Of our four regular meetings of the year, there were dinner and program meetings, and the last was entirely devoted to business of the chapter. Sectional meetings during the Wisconsin Teachers Association Convention, the Wisconsin Association for the Disabled and the Tri-State, Illinois, Indiana and Wisconsin Hospital Association afforded chapter members the privilege of hearing many interesting speakers.

We attempted to inaugurate a circulating library system to be contributed to, and used by, chapter members. However, our project is in need of further stimulus.

Respectfully submitted,
LOIS M. MITCHELL, *President*

Greetings

One of the first members of the Association, one of the most faithful and enthusiastic, Mary McMillan, sends greetings from far China. She was very sorry she could not be in Atlantic City, but she hopes she can at least be in the Home Country next summer, even if not in time for the convention. She sends her good wishes to all and hoped for a good convention. We hope she will enjoy reading about it when her REVIEW arrives in Peiping.

Code of Ethics and Discipline

This Code of Ethics is presented by the Committee with the recommendation that it be incorporated in the standing rules of the organization, to be modified as occasion demands.

I PROFESSIONAL PRACTICE

(a) Diagnosing, stating of the prognosis of a case, and prescribing of treatment shall be entirely the responsibility of the physician. Any assumption of this responsibility by one of our members shall be considered unethical.

(b) The patient shall be referred back to the physician for periodical examinations.

(c) A member shall not attempt to criticize the physician or dictate technique or procedure.

II ADVERTISING

(a) Members shall not procure patients by means of solicitors, agents, circulars, displays, or advertisements inserted in commercial periodicals.

(b) Business cards and announcements in medical journals, not stating fees, are permissible. A statement that the work is medically supervised should appear on the announcement.

III BEHAVIOR

(a) Members shall not indulge, before patients, in criticism of doctors, co-workers, or predecessors who have handled the case.

(b) It is well to bear in mind that our reputation as individuals and a group depends upon professional accomplishments and upon adherence to the standards of our organization.

IV DISCIPLINE

(a) There shall be a national committee and chapter committees on ethics.

(b) The national committee shall be composed of a chairman who is a member of the executive committee and two other members appointed by her.

(c) The duties of this committee shall be:

1. To properly weigh the charge and evidence against the offender.

2. The case warranting further action, to present it to the Executive Committee for final consideration.

Respectfully submitted,

MARIE FACKT, *Chairman.*

Available Professional Motion Pictures

1. A. M. A. films; cost—postage.

a. Effects of heat on the circulation of the blood in a venule of the rabbit's ear and leukocytes attacking a starch granule imbedded in the ear. 16 mm.—½ reel.

b. Effect of cold on the circulation of the blood in a venule of the rabbit's ear. 16 mm.—½ reel.

c. Massage—16 mm.—one reel.

d. Occupational therapy—16 mm.—one reel.

e. Graduated active motion—16 mm.—one reel. Simple measures facilitating graduated active motion.

f. Therapeutic exercise for the shoulder joint following dislocation—16 mm.—one reel.

g. Therapeutic exercise for severely strained elbow—16 mm.—one reel.

2. Burrell, Florence—230 Grand Ave., Oakland, Calif.

a. Congenital hips before and after treatment.

b. Three poliomyelitis cases before and after treatment.

c. Muscle transplants.

d. Amytonic congenita.

3. Denny, Marion—Gillette State Hospital, St. Paul, Minn. Methods in treatment of scoliosis.

4. Edson, Mildred—1024 E. Ogden Ave., Milwaukee, Wis. Poliomyelitis.

5. Kenney, Florence—Harvard Infantile Paralysis Commission, 300 Longwood Ave., Boston, Mass. All phases of the treatment of infantile paralysis.

6. Merrill, Janet—Children's Hospital, 300 Longwood Ave., Boston, Mass. Some mobilizing exercises for structural scoliosis.

7. Pearce, Jean—204 Hodgson Building, Minneapolis, Minn. "Give 'em a break"—32 and 36 mm.—cost—postage.

8. Plastridge, Alice—Warm Springs Foundation, Georgia.

a. Underwater physiotherapy.

b. Supervised walking.

9. Roen, Susan—2424 S. Flower St., Los Angeles, Calif.

a. Post surgical use of hydrogymnasium.

b. Technique of under water gymnastics.

10. Spitz, Mr. J.—Rehabilitation Commission of New Jersey, 1060 Broad St., Newark, N. J. Part of a film on physiotherapy. Cost—$5.00, and recognition must be given to the Rehabilitation Commission of New Jersey.

Note—It will be a great help in keeping this list up to date if members of the Association will send any information of new films to your Chapter Chairman of Publicity, or to the National Chairman of Publicity.

Fourteenth Annual Session

of the

American Congress of Physical Therapy

The American Congress of Physical Therapy announces two important events:

1. An instruction class covering the field of physical therapy for September 5, 6, 7, 1935.

2. The fourteenth annual scientific and clinical session for September 9, 10, 11 and 12, 1935.

Both of these events will be held at the Hotel Kansas Citian, Kansas City, Missouri, and every detail has been arranged to give the busy practitioner and technician a full week of intensive study in physical therapy.

Dr. Franz Nagelschmidt, formerly of Berlin and now of London, England, will participate in the course and in the convention program. There will be symposia on many subjects, including arthritis, fever therapy, and short wave; clinical group conferences in the various specialties; and a joint meeting on Tuesday evening, September 10, with the Jackson County Medical Society. A more representative group of teachers and clinicians has seldom been brought together for a medical gathering. The scientific exhibits should prove of unusual interest.

Preliminary program and circular of information may be secured by addressing: American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

Medical Meeting

The first annual meeting of the newly formed Mississippi Valley Medical Society will be held at the Lincoln-Douglas Hotel, Quincy, Illinois, on October 2, 3, 4, 1935. A most practical program of intensive postgraduate instruction by eminent clinicians has been arranged. A preliminary program may be obtained from the secretary, Harold Swanberg, M. D., 211-224 W. C. U. Building, Quincy, Illinois.

ABSTRACTS

John S. Coulter, M. D.

The Peripheral Blood Circulation in Chronic Arthritis and the Influence of Vasodilators

Dr. Joseph Kovacs, New York, (Third Conference on Rheumatic Diseases) in Jour. A. M. A., 103:23: 1803, Dec. 8, 1934.

Defective peripheral circulation and disturbed blood supply to affected joints are apparent in many cases of chronic arthritis. Questions arise as to which part of the peripheral circulation (larger arteries, veins, capillaries) is disturbed in chronic arthritis and which disturbances can be considered etiologic factors or merely aggravating agents. Although ligation of arteries to the patella of animals results in changes similar to hypertrophic arthritis, in man the obliteration of major vessels has a more destructive effect on soft tissue and does not produce arthritis, as witness the absence of the latter in endarteritis obliterans. Varicose veins present in many cases of arthritis have an aggravating, not an etiologic, role. Phlebitis likewise is a complication, not a cause, of rheumatic infection.

In arthritis, disturbances of peripheral circulation involve chiefly the minute vessels. In cases of atrophic arthritis I found small constricted capillaries in 53 per cent, a slow blood flow in 65 per cent, and a decreased number of capillaries in nailbeds peripheral to joints with definite swellings. In hypertrophic arthritis I found small capillaries in 28 per cent of cases, a slow blood flow in 53 per cent, and decreased number of capillaries near Heberden's nodes. Subnormal skin temperatures were found in 53 per cent of the combined types. Although I am not certain that articular vessels are similarly affected, a similarity in state may be rightly assumed.

The use of vasodilating drugs to increase peripheral circulation, therefore, seems indicated. The oral use of cholin compounds, histamine and nitrites is ineffective, and they produce only brief dilatation when administered subcutaneously. I have studied the effects of iontophoresis, the introduction of drugs through the skin by means of the polar effect of the galvanic (direct) current. Others have found histamine iontophoresis helpful in muscular rheumatism, unsatisfactory in chronic arthritis. Acetylcholine is rapidly destroyed by body fluids and blood. The new compound acetyl-beta-methylcholine chloride (mecholin) is preferable, as it is more potent, more stable and less toxic. The local and general effects of iontophoresis with mecholin have been compared to those with histamine. Locally, mecholin acts mostly on arterioles and produces an increased skin temperature for from two to eight hours, transitory "goose flesh," an increased oscillometric reading, a faster capillary flow, and a slight increase in the local leucocyte count. I have treated fifty-two patients with chronic arthritis, thirty with the atrophic type and twenty-two with the hypertrophic type. Definite improvement resulted in 90 per cent of the cases of atrophic arthritis, including stubborn cases, and in 80 per cent of those of hypertrophic arthritis. In the latter group however, similar benefits resulted from other and more usual measures. Reduction of joint swellings and an increased capillary flow were features of the result. Iontophoresis is contraindicated for febrile patients and in the presence of asthma, cardiac disease and advanced senility. Further investigation is needed to determine the amounts of these drugs absorbed during iontophoresis and their mode of action.

Physical Methods in the Treatment of Diseases of the Skin

George M. MacKee, M. D., New York, in South. M. J., 27:12:1006, December, 1934.

Physical therapy in dermatology, the subject requested, is rather a large one to cover in twenty-five minutes. For this reason it is necessary to limit the address largely to generalities and omit many details, particularly those of a technical nature. Also, because most of the audience consists of practitioners of general medicine, it is advisable to discuss, for the most part, only those physical measures that can be employed intelligently and safely by general physicians. I will, therefore, make only a few remarks concerning x-rays, grenz rays and radiations from radioactive substances.

As a preface I might say that physical therapy is an important part of practical dermatology. It is used less by dermatologists today, because a better training in the fundamental medical sciences and in the science and art of dermatology permits, in the case of many dermatoses, better results with conventional dermatological management than with physical therapy.

Ultraviolet Radiation

Heliotherapy and artificially produced ultraviolet radiation are useful in dermatology, but must less so than is generally believed by the medical profession and the laity. There is hardly a skin disease for which some physician has failed to claim good results with ultraviolet radiation. Most of these claims can be disregarded because they are clinical impressions based on a single or a few favorable results; also, there was no check on faulty diagnosis, spontaneous cure, coincidence, effect of contemporaneous therapy, and so on.

Technical considerations.—Most of the cutaneous affections that are amenable to ultraviolet radiation can be benefited by the radiation from the sun or from various ultraviolet ray generators. However, it is the consensus among those of extensive experience that the best results, in general, are obtained with solar radiation or artificial radiation the spectrum of which approximates that from the sun at low or moderate altitudes. In many of these dermatoses general body irradiation gives better results than does the irradiation of individual patches. Often it is necessary to irradiate several times weekly or even daily. As much of the body surface should be irradiated as is possible. At first, in most instances, the dose should be considerably less than that required to evoke erythema. It is then gradually increased.

From a scientific standpoint the carbon arc lamp is preferable because with cored carbons it is possible to vary the wavelength so that the radiation's spectrum simulates that of the sun or, when preferred, that from many of the quartz-mercury-vapor generators. From a practical standpoint, the air-cooled quartz lamps are preferable because, for technical reasons, the exposures are much shorter. American dermatologists seldom employ the carbon arc. They use mostly an air-cooled quartz lamp, occasionally a water-cooled quartz lamp. Many of the so-called sun-lamps are suitable for home use, but are inadequate for the office because of low intensity.

Recently the so-called cold quartz lamp has become popular. This generator emits radiation of great inten-

sity mostly of short wavelength. It has certain advantages for routine use in the office or clinic. The low heat emission permits the lamp to be placed close to the body. This, together with intense radiation emission, permits the application of a therapeutic dose to the entire body in a few minutes. Erythema, when effected with these short wavelengths, is less uncomfortable than when caused by longer wavelengths. Desquamation is more marked; blistering rarely occurs; pigmentation is less marked. These last three items are advantages at times, while at other times they prove a disadvantage.

We have been obtaining better results in some of the inflammatory dermatoses with the cold quartz lamps than with other ultraviolet generators, but, with few exceptions, I believe this to be technical rather than due to any special therapeutic value of the shorter wavelengths.

Results Obtained with Ultraviolet Radiation

Tuberculosis—Blistering doses of ultraviolet radiation administered with a water-cooled lamp with pressure sufficient to dehematize the skin are of value for the treatment of restricted areas of lupus vulgaris. General body irradiation with solar radiation, or with that from an artificial source, is valuable as an adjuvant to other methods for a few members of the cutaneous tuberculosis group. It appears to be of greatest value for lupus vulgaris, scrofuloderma, unclassified forms of tuberculosis cutis and, perhaps, early cases of orificial tuberculosis.

Pyogenic affections—Local irradiation is beneficial for the chronic types of acne vulgaris: acute indurata, acne papulosa and comedo. Quantities sufficient for desquamation may be given once or twice weekly, or graded doses several times weekly, or even daily. Unfortunately, the result is usually temporary.

Many physicians believe that a single strong dose of ultraviolet radiation applied to a boil in its very early stage of evolution tends to abort the lesion. In my hands this treatment has not been very successful.

Good results have been obtained with local irradiation in cases of erysipelas. Erythema or desquamating doses are applied to the affected area and surrounding normal skin daily, or every second day, for two or three applications. The same result is obtained with x-rays. My personal opinion is that this treatment is not sufficiently reliable to be used alone for this serious disease. I prefer general medical care, including the use of antitoxin, together with either x-rays or ultraviolet rays.

Scaly and exudative dermatoses—A great many physicians state that local irradiation is beneficial for eczema, but when this exceedingly polymorphous affection is considered as a whole, it must be admitted that the remedy is of little value. Erythema doses are contraindicated in the acute exudative types. While such treatment is occasionally beneficial, it is likely to prove injurious. A large dose applied to a patch of chronic squamous eczema may hasten resolution, but better results are obtained with topical remedies; and still better results, in stubborn lesions, with x-rays.

Not infrequently, erythemal or exfoliating doses of ultraviolet radiation will cause parapsoriasis to disappear, at least temporarily. It seems to be more effective in the macular and patchy types of the disease, less so in the papular and other varieties.

Nevi—Good results have been obtained with erythema and blistering doses of ultraviolet radiation in cases of adenoma sebaceum.

Alopecia—In the common types of alopecia: alopecia areata, alopecia, seborrheca, alopecia systemica, and so on, large doses evoke hyperemia which may be beneficial, but the same or better results are obtained with topical remedies.

Unfavorable results—Excessive exposure of the entire body, or large areas thereof, to solar radiation or to artificially produced ultraviolet radiation may cause mild, moderate, severe and even serious systemic reactions. In the presence of idiosyncrasy, or hypersensitiveness, or sensitization, exposure to light may evoke recurrent eruptions of urticarial, erythema multiform, or eczematoid type; or frequent long exposures over a period of many years, may lead to sailors' skin or farmers' skin. This last condition resembles xeroderma pigmentosum and the so-called x-ray or radium skin. Farmers' skin is potentially dangerous and is included among the clinical precancerous conditions because of the possibility of subsequent keratoses and cancer. Excessive local exposure may induce unpleasant burns which, however, usually heal completely, but which may result in a condition known as erythema solare perstans. Injudicious irradiation may make inflammatory diseases such as eczema and psoriasis worse or may cause them to change to the secondary type of dermatitis exfoliativa, a very disagreeable recalcitrant affection. Herpes simplex and lupus erythematosus may be precipitated by exposure to strong actinic light. Such light plays an etiologic role in the symptom complex of pellagra, xeroderma pigmentosum, pseudoachromia parasitaria, hydroa estivale and berloch dermatitis. It may also cause severe conjunctivitis. The present mania for sun bathing and for artificial sun bathing in the home may or may not be beneficial. As a rule it is harmless, but without intelligent supervision an occasional person will be injured. This is especially true, possibly, in the case of infants and children.

Diathermy

A few dermatologists believe that medical diathermy is of value in lichen planus and scleroderma. My results with this method in these diseases have been unsatisfactory.

The three forms of surgical diathermy, namely, electrodesiccation, electrocoagulation and the cutting current, are employed a great deal by dermatologists. The electrodesiccating current can be controlled so that a tiny lesion can be instantly destroyed, or a more extensive lesion thoroughly dehydrated. The method is indicated only for superficial benign and potentially dangerous lesions; filiform and digitate warts, plantar and common warts, pedunculated fibromas, molluscum contagiosum, small areas of leukoplakia, keratoses, selected nevi, small superficial basal-cellepitheliomas and so on. Some form of anesthesia is essential except when the application is almost instantaneous.

Electrocoagulation is employed mostly for the destruction of malignant neoplasms when scalpel excision is impossible; also for benign lesions that are too thick for electrodesiccation: warty tuberculosis, selected cases of cavernous angioma and lymphangioma, and a few other conditions.

The cutting current is used when the scalpel is contraindicated. Many physicians contend that it should be employed to the exclusion of the scalpel in cases of malignancy because of the lessened danger of metastasis.

Electrolysis

Electrolysis has been used successfully in dermatology for many years. Many small, superficial, benign lesions can be destroyed with very slight permanent defect by this method: conditions such as sebaceous adenomas, common moles, and so on. Its greatest value is for the permanent removal of superfluous hair. For this purpose I prefer a single, very fine, dull-pointed needle and not over one milliampere of current.

Warm Springs

A letter from Doris Bars to the western New York Chapter

Your interest in my work at this time is certainly appreciated. As you know, I am located in the sunny south, working at the Georgia Warm Springs Foundation. This Foundation was created for orthopedic reconstruction work and only poliomyelitis cases are accepted for treatment here. To better acquaint you with the work, I am outlining a typical day's activity.

The majority of patients are located in cottages which are arranged in colony formation. They are brought from their respective cottages to Georgia Hall where they enjoy a delicious breakfast. At the close of the meal the bus is found to be waiting outside the hall for the purpose of transporting the patients to the pool. After driving down past the picturesque golf course, a glass enclosed building comes into view. This houses the indoor exercise pool where treatments are given during the winter months. This pool is connected with the outside play pool and the outside exercise pool by channels. These respective pools are fed by water which gushes out of a deep spring at the rate of 1,800 gallons a minute and at a temperature of eighty-eight degrees Fahrenheit the year around.

One may enter the exercise pool at any of the four corners by steps which are fitted with hand rails. The pool is provided with exercise tables and chairs which the physical therapist uses in giving under-water treatments. Very weak muscles are given a better opportunity to work in under-water treatments because the buoyant effect of the water eliminates the gravity load from the joints. In order that one may have her muscle charts before her while giving treatment, a rod with a clip attachment is fastened to the end of each table. The patient's body, while on the table, is completely covered with water and the head is supported by a rest.

The patients, who have arm involvement, and who are able to sit up, are given their arm exercises in the exercise chairs where the body is submerged to the chin. In this position many of the arm and shoulder muscles may be exercised to a greater advantage than in the reclining position.

At the close of this muscle re-education work and after a short rest period, the patient is turned over to another physical therapist for his swimming lesson. Each patient is taught only those special strokes which are adapted to his particular case and which will help him improve his condition.

There are adjustable stationary ramps in the pool which the patients use while being taught to walk in the water. This is an advantage because it requires less effort to walk in the water, and many cases acquire the feeling of using the correct muscles for this activity. This is a preparatory measure which helps the patient in his future walking.

As additional equipment, two large Hanovia ultra-violet lamps are located in the winter solaria. These lamps are of sufficient size to expose eight persons at a time. Ultra violet treatments are given during the winter months when the patients are unable to get the sunshine out-of-doors due to the colder temperature which prevails.

After completing the pool work in the morning, the afternoon is given over to rest-hour, massage, walking exercise and hand exercise. The walking is held out-of-doors unless the weather is unfavorable. In that event it is given in the indoor exercise cottage which is supplied with the necessary apparatus.

The first lesson in walking is given by the aid of a ramp of the suitable height for the patients. When they are able to master ramp-walking, they are gradually transferred to crutches and later to canes where indicated. Crutch and cane-walking are done before a mirror in order that the patient may not only see what he is doing but also be able to correct his faulty movements. Next, the patient is given instruction and practice in walking up and down steps. These steps are of four different heights, the lowest having four-inch risers.

Those patients, who have hand and arm involvement, are assigned practice work in occupational therapy. A trained occupational therapist teaches them how to make various worth while articles while the physical therapist supervises the use of the various muscles in this activity.

Georgia Hall is the social center of life at the Foundation. It is always filled with happy faces and the patients surely do enjoy the companionship of one another. One may enter this building by various doors but there is one which holds a great amount of fascination for everyone. It is known as the "magic door" because it opens and closes by electrical control. An electric light bulb throws a beam of light across the passage contacting a glass fixture which makes the circuit complete and keeps the door closed. As soon as one's shadow breaks this beam, the door springs open, and in like manner as soon as one has passed through and the contact is re-made.

Patients at Warm Springs are extremely fortunate in that life is made as nearly normal as possible. Their mental and psychological welfare is considered to be just as important as their physical recovery and they are taught to become independent.

Late afternoon or evening of any day may find several tables of bridge, a game of carroms in one corner, a game of ping-pong in another, or a group assembled around the piano for singing. Three evenings every week free movies are shown at the Foundation theatre and two evenings each week the craft room is open at which time adults may make articles of their choice—again under supervision. On pleasant afternoons many patients go automobile riding; some are able to drive their own cars by the use of hand controls. Those who are able may even enjoy horse-back riding.

The patients are of varying ages and the retiring hours are arranged accordingly. Lights are put out and rounds are made by a person who is both a trained nurse and a physical therapist. At this time she checks night apparatus and sees that each patient is lying in the position which is indicatetd for his particular involvement.

Book Reviews

THE LIFE OF SIR ROBERT JONES, by Frederick Watson. 327 pages with 10 illustrations. Cloth. Price $3.75. Baltimore. William Wood and Companay. 1934.

Sir Robert Jones in 1921 edited the "Orthopedic Surgery of Injuries" and in 1923, in collaboration with Robert Lovett, published "Orthopedic Surgery." Those who have read these books appreciated the influence of Jones in placing physical therapy on a sound basis. Watson's biography of this most famous orthopedic surgeon gives the development of his ideas in the use of physical agents as adjuncts to orthopedic surgery.

Robert Jones in his work for crippled children and in his prolonged struggle for the disabled soldier, established certain valuable principles about physical therapy. This volume relates how he found in the war work a

want of cohesion between departments of treatment such as massage, physical exercises, electricity and manipulative and operative groups of cases, all of which properly controlled make for success in orthopedic surgery. By his influence, the first experimental curative workshop was opened at Shepard's Bush on March 1, 1916. In this workshop after the preliminary stages of operative and surgical treatment were over, there was a steady gradation of treatment through massage and exercise to productive work, which was commenced as soon as the man could use his limb at all.

Jones was interested in the first open-air hospital for crippled children at Baschurch where it was shown that it is efficient work that counts and that it can be done without waiting for elaborate and expensive equipment. In the Royal Southern Hospital of Liverpool, Robert Jones first initiated his treatment of the crippled child, and within its walls in 1911 ultraviolet radiation was first used in England.

This is a book of outstanding interest to physical therapists, and will well repay reading.

WHAT YOU SHOULD KNOW ABOUT HEART DISEASE, by Harold E. B. Pardee, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical School; Associate Attending Physican, New York Hospital, etc. Second Edition. Cloth—small 12 mo. Pages 127 with 4 illustrations. Price $1.50. Philadelphia. Lea and Febiger, 1935.

The purpose of this book is to give the patient, in terms which he can comprehend, a knowledge of heart disease. This information will help the patient to follow his physician's directions intelligently. In the treatment of heart disease, rest and exercise are important physical agents to use. There is a chapter devoted to these subjects, emphasizing that the treatment of a diseased heart by exercise must be conducted by one who thoroughly understands it, for the possibility of doing harm by pushing exercises beyond the limit of the heart's ability can be readily appreciated.

There is so much for the patient with heart disease to know that it is almost impossible for the physician to tell the patient the many detailed instructions There is so much for the patient to learn that he may fail to grasp something of importance or may forget it. Many times the patient becomes alarmed about the terms used to describe the condition of his heart, and he wants a clearer conception of his condition. This book enables the patient to read what he should know about his disease and to reread it if he forgets.

Some patients have a cardiac neurosis as well as an organic disease. These people are overcautious. It is important for them to do things that their physician states are safe as well as to avoid those things that he tells them are unsafe. The tone of this book is optimistic and will help this class of patients.

EMOTIONS AND BODILY CHANGES, by H. Flanders Dunbar, M.D., Ph.D., Departments of Medicine and Psychiatry, Columbia University, New York City. Cloth. Price $5.00. Pp. 595. Columbia University Press, 1935.

This book will no doubt receive well merited praise as a real contribution of the current year. The author states that the monograph represents an attempt to bring together in some sort of perspective, the research material which has been combined to develop those concepts in medicine which are the necessary foundation for further research in the sphere of psychosomatic problems. Although the work is essentially a bibliography, listing 2251 references, it is presented in a unique and attractive style. The author has made a very thorough review of the literature, and has presented the material, objectively as far as possible. In calling attention to the progress of physiological and neurophysiological investigations, the author has at the same time, emphasized the close interrelations with psychological mechanisms, stressing the need for further studies in such a direction. The wealth of material presented should prove exceedingly interesting to medical men, physiologists, and psychologists, particularly those engaged in research. The graduate student will welcome such a guide.

The monograph is divided into three parts. The first entitled "Orientation and Methodology," deals with the broader problems concerning the relationship between the human organism and his environment. The concept of psychosoma is presented so as to emphasize the broader significance of the symptomatology of illness. In addition, the problem of measurement of reactions is discussed, including the most recent advances in psychogalvanometry capillary microscopy, biochemical methods, etc.

The second part deals with specific reactions of organs or organ systems. The author presents evidence for serious consideration by those interested in any of the special divisions of the body: the nervous system, musculature, endocrines, cardiovascular, respiratory, gastrointestinal genito urinary, etc. The significance of emotions and psychological factors in the etiology of various symtom-complexes, is presented in such a manner as to offer considerable "food for thought."

The third part is a brief resumé of the more recent trends in therapy. The value of psychotherapy is emphasized. Psychoanalysis is touched upon as an advance in the right direction; at the same time the author warns against "pitfalls in therapy." Disease is a process in the total personality merely manifesting itself in symptoms. To treat the symptoms without considering the psychic, is just as erroneous as treating the psychic without attention to the somatic side.

This book is rich in material and as a reference volume should find a definite place in the up-to-date scientific library.

YOUR CARRIAGE, MADAM! by Janet Lane, 130 pages, illustrated. Cloth. Price $1.75. New York, John Wiley and Sons, Inc., 1934.

Posture or body mechanics was recently described by the White House Conference on Child Health and Protection as the mechanical correlation of the various systems of the body with special reference to the skeletal, muscular, visceral and neurological systems. Normal body mechanics obtains when this mechanical correlation is most favorable to the function of these systems. Therefore the human body may be looked upon as a machine, and if the various parts are not properly correlated there must be more strain and wear.

Miss Lane's book gives a new and practical slant to body mechanics. In a racy, entertaining style she breaks down the ideas of this subject into everyday living. It is an ideal book to have your women patients read to secure their interest in good posture for the author shows that good body mechanics keeps you lithe, trim, easy poised and graceful by exercising and using the right muscles.

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